USER MANUAL

61301603579 Rev. A

SERIES 2100
CAGE, RACK, AND UTENSIL WASHERS

USER MANUAL

MTP®

SERIES 2100
CAGE, RACK, AND
UTENSIL WASHERS

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GETINGE Castle

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Related Publications:

Service Data Manual 61301603580

Customer Manual—keyed to the customer's specific serial number

DESCRIPTION OF SYMBOLS & NOTES IN MANUAL

The following symbols with related notes appear in this manual.

"Warning" notes alert the user to the possibility of personal injury.

"Caution" notes alert the user to the possibility of damage to the equipment.

"Notes" alert the user to pertinent facts and conditions.

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SPECIAL SAFETY INSTRUCTIONS

THE FOLLOWING SAFETY INSTRUCTIONS APPEAR WITHIN THIS MANUAL. READ THEM CAREFULLY BEFORE OPERATING THE UNIT.

"Warning" notes alert the user to the possibility of personal injury.

Warnings Summary **p. xv**

FALL HAZARD: Areas located immediately around the washer may become a fall hazard due to water dripping from the plumbing components. For a safe environment, insure floor is kept clean and dry.

BURN HAZARD: This washer operates at extremely high temperatures. Prior to any machine maintenance or service, the washer should be allowed sufficient time to cool. Caution should be used in and around the washer chamber and external piping. Water flow and discharge piping can cause personal injury such as burns. The user should partially open the chamber door to allow hot air to exhaust and to allow all loads adequate time to cool. Opening the chamber door fully may cause large amounts of steam to escape.

SHOCK HAZARD: Prior to any service or maintenance on the washer, all utilities should be disconnected and the lockout/tagout procedures should be followed to insure safety and prevent accidental shock.

PERSONAL HAZARD AND EQUIPMENT DAMAGE: Safe and efficient operation of this equipment requires scheduled preventative maintenance. Routine adjustments and replacement of parts by other than Authorized Service Technicians may cause personal injury or the equipment to perform less than its capabilities.

General Machine Operation **p. 3-1**

BURN HAZARD: Do not open a Washer door during a cycle. This could release hot water through the door opening, resulting in burns to personnel.

RISK OF FALLING: The chamber floor may be slippery when wet. When inside the chamber, walk carefully to maintain balance and avoid injurious falls.

Daily Checklist **p. 3-4**

HOT SURFACES: The Chamber could be HOT. Turn OFF the Electrical Disconnect Switch and make sure the Washer is cool before removing the Self-Cleaning Debris Filter Screen for cleaning.

Emergency Stop **p. 3-7**

BURN HAZARD: Do not open a Washer door for at least five seconds after stopping a processing cycle that was running a hot wash or rinse water

phase. This allows time for the spray manifolds to stop functioning; otherwise hot water could spray out of the door opening, resulting in burns to personnel.

RISK OF FALLING: Do not enter a Washer chamber immediately after stopping a processing cycle that had been running a Dry phase. Allow sufficient time for all metal surfaces within the chamber to cool. Otherwise hot surfaces may contact and cause burns to personnel.

Cycle Abort Condition **p 3-9**

The Electrical Disconnect Switch de-energizes the washer. The switch disconnects the 3 phase power to the controls of the washer **but does not** remove all electrical power from the control box.

Routine Maintenance Schedule - Standard, Every Six Months **p 4-4**

ELECTRIC SHOCK HAZARD: Only an electrician should perform this test!

DESCRIPTION OF SYMBOLS ON THE EQUIPMENT

Switches

ELECTRICAL DISCONNECT SWITCH

Rotate the switch from the OFF to the ON position to supply electrical power and operate the washer.

EMERGENCY STOP

Locate the EMERGENCY STOP Switch on the Load and Unload end of the washer.

Press to:

1. Terminate all functions, and
2. Sound the alarm.

To reset:

1. Pull the button, and
2. Turn the power off/on to reset the washer.

EMERGENCY CABLE RESET SYSTEM

Pulling the safety cables in the wash chamber sounds the alarm and lights the emergency button. Press the EMERGENCY CABLE RESET SYSTEM button to enable the washer to operate.

OPEN DOOR (Power Door, Double Door Model Only)

Pressing the OPEN DOOR switch opens the door.

Indicators

IN PROGRESS (Pass-Through models Only)

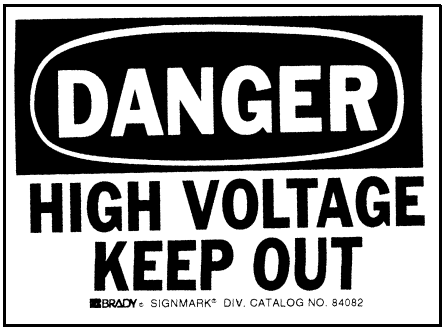
Indicates that the washer in IN PROGRESS or a wash cycle has started.

COMPLETE CYCLE (Pass-Through Models Only)

Indicates that the wash cycle has finished and the user can unload the washer.

Labels

The following labels on the Control Box alert service personnel to possible hazards.



HIGH VOLTAGE

Prior to any service or maintenance on the washer, all utilities should be disconnected and the lockout/tagout procedures should be followed to insure safety and prevent accidental shock.

CAUTION

To reduce the risk of electrical shock, do not remove cover. Refer servicing to Authorized Service Technicians.

WARNINGS SUMMARY

SPECIAL SAFETY INSTRUCTIONS THAT FOLLOW APPEAR WITHIN THE MANUAL.

READ THEM CAREFULLY BEFORE OPERATING THE UNIT, AND FOLLOW THE INSTRUCTIONS.

- **FALL HAZARD:** *Areas located immediately around the washer may become a fall hazard due to water dripping from the plumbing components. For a safe environment, insure floor is kept clean and dry.*

- **BURN HAZARD:** *This washer operates at extremely high temperatures. Prior to any machine maintenance or service, the washer should be allowed sufficient time to cool. Caution should be used in and around the washer chamber and external piping. Water flow and discharge piping can cause personal injury such as burns. The user should be cautious when opening the door before the chamber cools. Partially open the chamber door to allow hot air to exhaust and to allow all loads adequate time to cool. Opening the chamber door during a cycle may cause large amounts of steam to escape.*

- **SHOCK HAZARD***: Prior to any service or maintenance on the washer, all utilities should be disconnected and the lockout/tagout procedures should be followed to insure safety and prevent accidental shock.*

- **PERSONAL HAZARD AND EQUIPMENT DAMAGE***: Safe and efficient operation of this equipment requires scheduled preventative maintenance. Routine adjustments and replacement of parts by other than Authorized Service Technicians may cause personal injury or the equipment to perform less than its capabilities.*

PERSONNEL SAFETY SYSTEM

To Activate the Personnel Safety System

This washer is equipped with a personnel safety system. The system includes six major components. The Washer will not start the wash cycle when the:

1. Load Door is open.
2. Unload Door is open.
3. Safety Cables are too loose or the cable tension is not adjusted correctly. The Safety Cables need to be within specification to reset the Plunger on the Safety Switch.
4. Safety Cables are pulled.

   The Alarm sounds and the Emergency Buttons lights.

   Location**:** Inside the cabinet, on both sides of the Chamber, running from the Load End to the Unload End. Red in color for easy recognition.

   Purpose**:** To shut down all functions of the Washer by pulling the Safety Cable.

When the automatic treatment cycle begins, the audible alarm sounds.

   When to Use**:** When the wash cycle starts and the audible alarm sounds, pull the Safety Cable to immediately abort the start of a wash cycle and open the doors. This will terminate all washer functions.

   This feature can be used by anyone inside the Chamber when the doors are closed.

5. Load End EMERGENCY STOP Switch is pushed.

   The Emergency Button lights and the Alarm sounds.

6. Unload End EMERGENCY STOP Switch is pushed.

   The Emergency Button lights and the Alarm sounds.

On washers with Power Telescoping Doors, when either the Safety Cables are pulled or the EMERGENCY STOP Switch is pushed, the doors open automatically.

On washers with a printer, when the alarm occurs, a time stamp is printed.

To Reset the Personnel Safety System

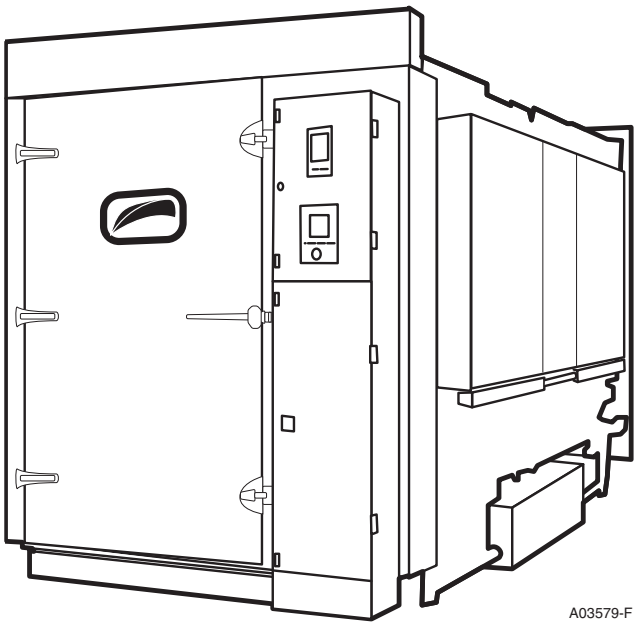
When the personnel safety system is used, all washer functions stop. To reset the system, do one of the following:

If the:	Do one of the following:
Load Door or the Unload Door is open.	Close the door. Press START.
Safety cable was pulled.	Press the EMERGENCY CABLE RESET SYSTEM switch. Turn the power off/on to reset the washer.
EMERGENCY STOP Switch was pushed.	Pull the EMERGENCY STOP Switch. Turn the power off/on to reset the washer.

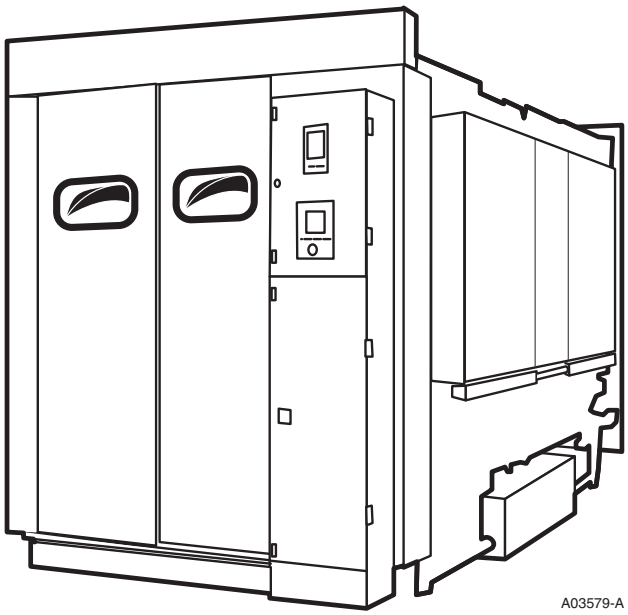
Section 1 General Description

INTRODUCTION

Figure 1–1. 2100 SERIES WASHERS



MANUAL DOOR



POWERED DOOR

2100 series units are automatic, heavy duty, multi-cycle, single chamber, floor loading, hydro-spray washers. These units are designed to efficiently and thoroughly clean, sanitize and dry cages, racks, racked utensils, and bottles used in research animal care facilities.

Both powered single or double door pass-through units are available. Units may be floor or pit mounted through one or two walls or installed free standing. Left or right side service access and control panel locations are available

Models and typical dimensions are listed in Table 1–1.

Table 1–1. 2100 SERIES WASHERS

MODEL	CHAMBER (in. [cm])	OVERALL (in. [cm])
2110	46 W x 85 H x 93 L [117 x 216 x 236]	84 W x 105 H x 105 L [213 x 267 x 267]
2120	46 W x 85 H x 141 L [117 x 216 x 358]	84 W x 105 H x 153 L [213 x 267 x 389]
2130	46 W x 85 H x 189 L [117 x 216 x 480]	84 W x 105 H x 201 L [213 x 267 x 511]
2150	72 W x 85 H x 141 L [183 x 216 x 358]	123 W x 105 H x 153 L [312 x 267 x 389]

Routine operation consists of loading the chamber, closing the door, and pressing START. The Washer then performs the processing cycle and automatically shuts off when the cycle is complete. Following completion, either the Unload End door (Double Door Pass-Through model only) or the Load Door is opened and the load is removed.

Treatment solutions are delivered by means of an oscillating (back and forth motion) manifold equipped with spray nozzles. Automatic dispensing of detergent during the Wash phase is a standard feature.

Processing cycles are controlled by means of a Programmable Logic Controller (PLC) equipped with a Touch Control Panel (TCP) or a LED screen. Twelve cycle selections are possible. The user needs to select and start an appropriate cycle.

A standard cycle consists of the following sequential phases: Prewash, Wash 1, Wash 2, Rinse 1, Rinse 2, Rinse 3, and Exhaust. Any adjustments to a cycle's phase timing are made at the control panel.

The washer may be installed in a pit (Pit-Mounted) or installed at floor level (Floor Mounted Option). When installed in a pit, the floor of the wash chamber is the same level as the room floor allowing direct loading and unloading of carts. When installed at floor level, the floor of the chamber is higher than the room floor; ramps are provided as standard equipment to facilitate loading and unloading.

Standard Features

- Microcomputer Control System
- Twelve User Programmable Cycles
- Automatic Seven Phase Treatment Cycles
- Program Access Code Security
- Wash and Rinse Temperature Assurance
- Built-in Service Diagnostics
- Personnel Safety System
- Oscillating Jet Spray System
- Fully Draining Treatment Pump and Sump
- No Treatment Solution Carry Over

- Automatic Sump Water Level Control
- Automatic Self-Cleaning Debris Filter
- Stainless Steel Steam Coil Heating
- Power Slide Telescoping Door(s)
- All Stainless Steel Construction
- Smooth Chamber Interior Construction
- Full Chamber Stainless Steel Floor Grating
- Insulated Chamber Construction
- Illuminated Chamber Interior
- Left or Right Service Side Installation
- Pit or Floor Mounting

Optional Features

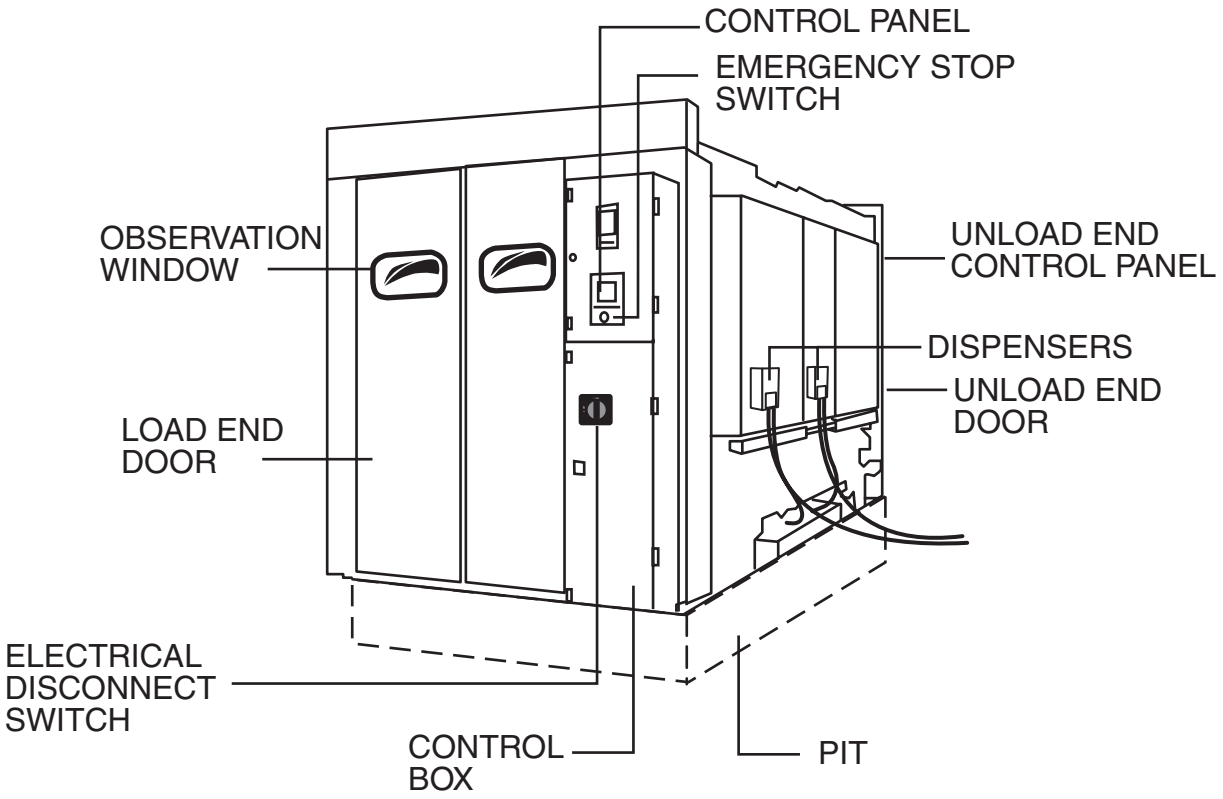
- Printer
- LED Controls
- Electro-Mechanical Controls
- RS232 or RS485 Port for Data Download
- Air Dry System
- Double Door Pass-Through
- Double Door Interlocks for Manual Doors
- Manual Swing-Out, Side Hinged Doors
- Stainless Steel Treatment Components
- Alkaline or Acid Wash Agent Saver System
- Cold Water Prewash Treatment
- Non-Recirculated Rinse Systems
- Water Supply Temperature Booster
- Automatic Agent Injection Systems
- Floor Jet Spray Header
- Automatic Manifold Bottle/Utensil Rack Coupling
- Center Header System
- Pan Washing
- Automatic Water Rack Flushing System
- Automatic Damper
- Exhaust Fan
- Vapor Removal Condenser
- Drain Discharge Cool-Down System
- Treatment Solution pH Neutralization
- Free-Standing Cabinet System
- Seismic Design
- Knocked Down Shipment
- Modem
- Modem Troubleshooting
- Pit Flush

Accessories

- Floor Loading
- Hydraulic Low Entry Loading Platform
- Cart Tilt Ramps
- Universal Cage and Pan Processing Rack
- Cage Processing Rack
- Pan Processing Racks
- Manifold Feeder Bottle Rack
- Cage Processing Rack for Central Header System
- Feeder Bottle Baskets
- Stainless Steel Pit Plates

EXTERIOR COMPONENTS

Figure 1–2. EXTERNAL COMPONENTS



Standard unit shown: pit mounted

Control Panel

Provides a pressure sensitive touch screen for the user that is connected to a Programmable Logic Controller (PLC) located in the Control Box. Enables the user to select, program, and monitor processing cycles.

EMERGENCY STOP Switch

The EMERGENCY STOP Switch should be used to terminate all treatment functions and activate the audible alarms.

Electrical Disconnect Switch

Rotate the Electrical Disconnect Switch to the:

- ON position to energize the washer.
- OFF position to de-energize the washer.

Doors

Provide access to the Washer chamber. Each door is equipped with an Observation Window. Safety Latches are included on all Swing-out Door models. Safety Latches are designed to release a closed door when a moderate amount of physical force is applied against the surface of the door from the inside.

Door Closed Switches

Stops Washer operation if a Load or Unload End Door is opened during a cycle. Prevents the start of washer operation if a door is not closed. Located on the Load and Unload End Control Panels.

Alarm (Not Shown)

Sounds an audible alert when:

- A cycle is completed (Pulsing/Audible alarm).
- A cycle is aborted.
- A Safety Cable is pulled.
- The Programmable Logic Controller (PLC) detects processing problems.

Service Area (Not Shown)

Contains piping, valves, pumps, control box, manifold drive motor, etc.

Dispenser (Option)

An optional Chemical Dispenser automatically pumps the required chemical into the water solution held in the sump. The Dispenser is activated during the wash phases of a processing cycle.

Pit

Supports the bottom structure of the washer within a drained enclosure, thus enabling the Washer chamber to be situated at floor level for ease of loading and unloading.

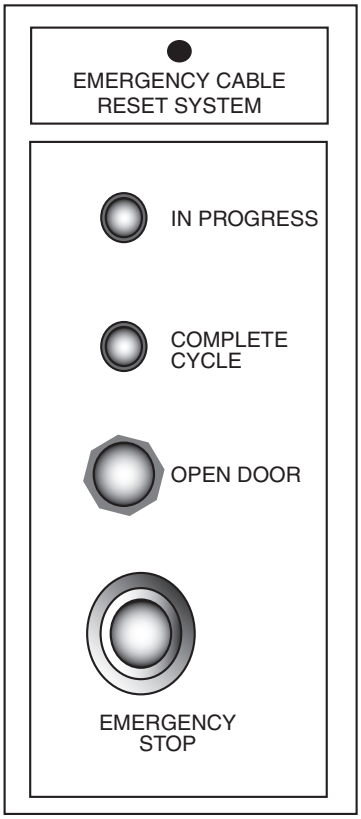
Automatic Self-Cleaning Debris Filter (Not Shown)

The output of the wash pump is provided with a self-cleaning debris filter screen having perforations smaller than the spray jet orifices to prevent plugged jets. The filter is attached to the Treatment Pump and is back flushed by a ball valve operated by the control system. The filter screen can be accessed without the use of tools.

A screen is provided at the input to the pump to prevent large debris from entering the pumping system.

The automatic self-cleaning debris filter screen should be rinsed clean weekly, removing any debris. See Table 4–1, “Maintenance Schedule—Standard,” on page 1.

Figure 1–3. UNLOAD END CONTROL PANEL



EMERGENCY CABLE RESET SYSTEM

After the Personnel Safety System has been used, press the EMERGENCY CABLE RESET SYSTEM shaft to reset the switch. Turn the power off/on to reset the washer. For more information, see “PERSONNEL SAFETY SYSTEM” on page -xiv. The EMERGENCY CABLE RESET SYSTEM Switch is located on the Unload End Control Panel.

IN PROGRESS Indicator

Displays a red light for the duration of an ongoing processing cycle. The IN PROGRESS Indicator is located at the Unload End of the Washer. Displays the operational status of the unit at the Unload End.

COMPLETE CYCLE Indicator

Displays a green light whenever the Electrical Disconnect Switch is turned ON, as long as a cycle is not operating. The light turns off at the start of a processing cycle. When the cycle ends, the light comes back on. The CYCLE COMPLETE Indicator is located at the Unload End of the Washer. Displays the operational status of the unit at the Unload End.

OPEN DOOR Switch (Option)

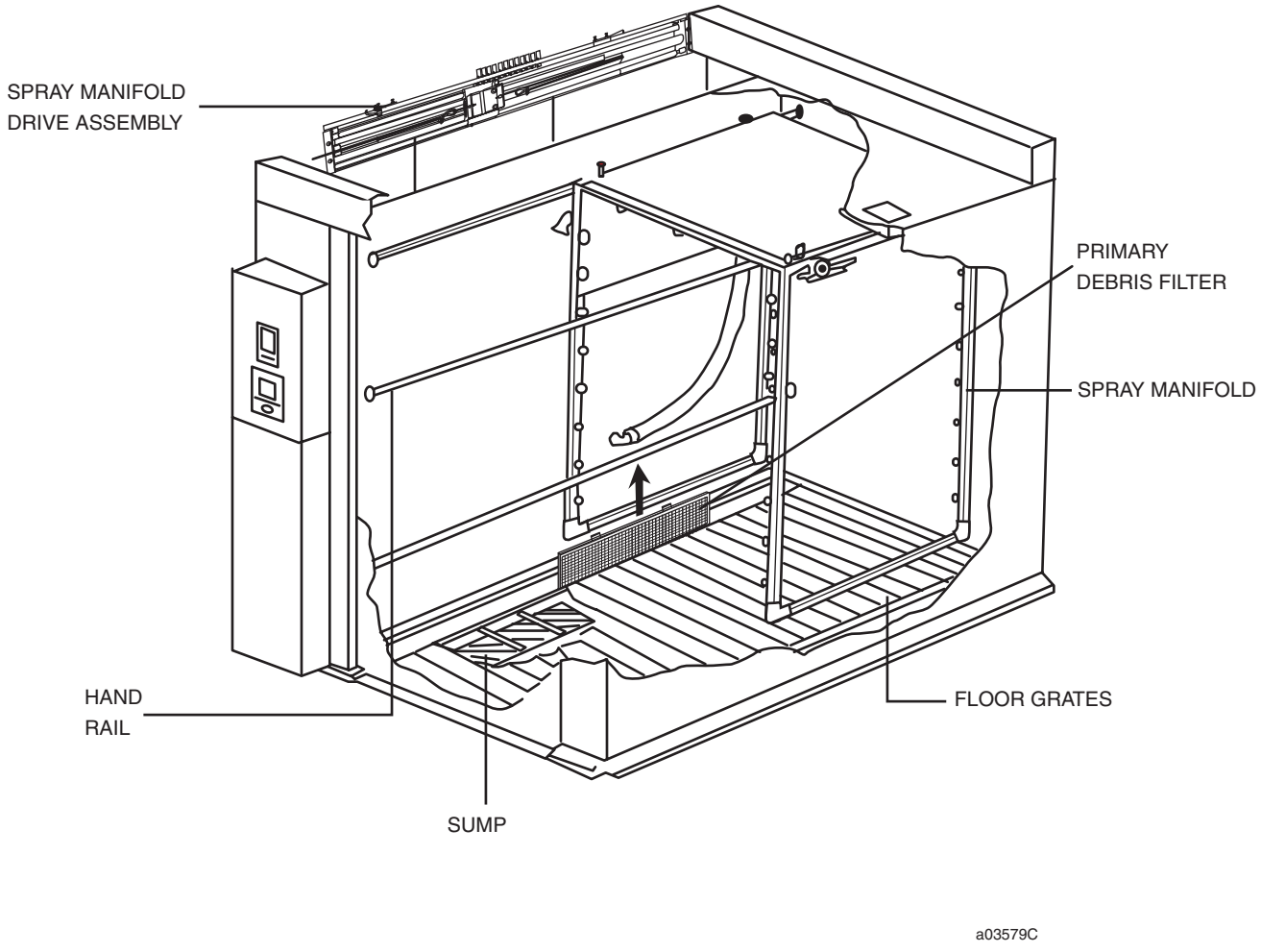
Press and release the OPEN DOOR Switch to open the power door when the washer is not in a cycle. Located on the Unload End. This option is available on power door models only.

EMERGENCY STOP Switches (Load and Unload End)

Pressing the EMERGENCY STOP switch terminates all functions of the washer and sounds the alarm.

INTERIOR COMPONENTS

Figure 1–4. CHAMBER COMPONENTS



Spray Manifold

Delivers the various wash and rinse spray treatments to the load during a processing cycle. Vertical and horizontal sections, fitted with spray nozzles, make up the complete assembly.

Spray Manifold Drive Assembly

Moves the Spray Manifold back and forth along the length of the chamber during a processing cycle.

Hand Rail

Functions as a restraint to keep items, such as utensil carts, from being improperly positioned. Four rails are provided, two on each side of the chamber.

Floor Grates

The grates are removable in sections; the number of sections depending on the length of the chamber. In the Inclined Floor Grating option, the floor grates are slightly pitched to assist in the draining of pans and racks.

Sump

Holds the supply of solution (wash and rinse) that is pumped to the Spray Manifold during a processing cycle. During processing, it collects all drainage for recirculation. A steam heating coil installed in the sump maintains the temperature of the wash solution and other treatment solutions - if specified. Drain screens cover the inlet to the extended sump to prevent large particles of foreign matter from entering.

Exhaust Damper (Not Shown)

Opens during the Exhaust phase of a wash cycle to permit residual vapors to escape from the chamber. Partially closed during the wash and rinse phases of the wash cycle.

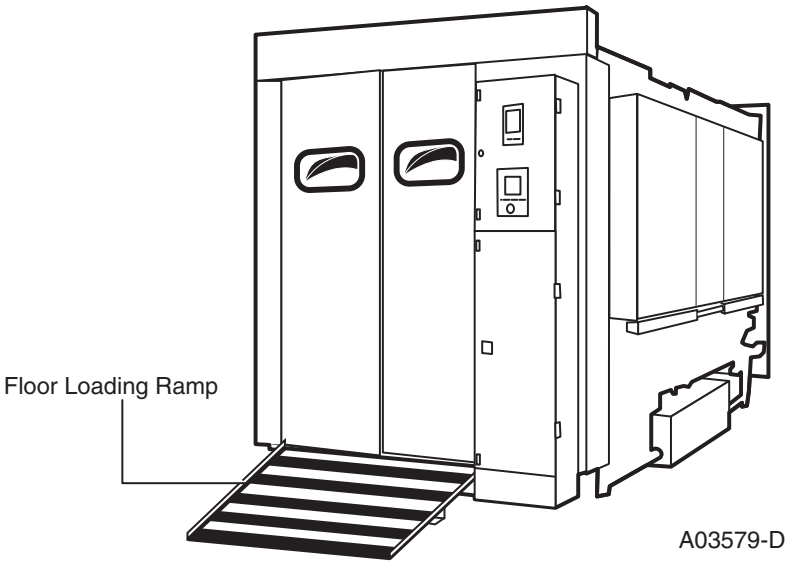
OPTIONS

The 2100 Washer may be equipped with the following options:

Floor Mounting

Washer may be installed at floor level if a shallow pit is undesirable or impractical. The result is a chamber floor that is higher than the surrounding room floor. Door Ramps are provided with Floor Mounted units to facilitate loading and unloading.

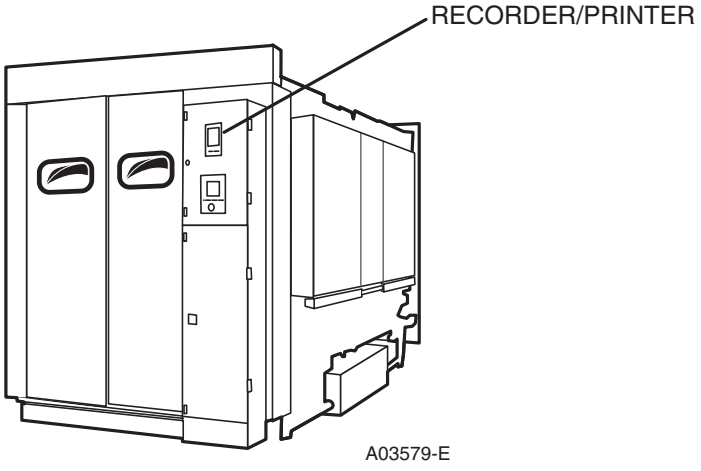
Figure 1–5. FLOOR MOUNTING (Option)



Recorder/Printer

Issues a printed record of all pertinent cycle data, including treatment functions, temperature, time, and date. A Take-Up Reel is provided to retrieve and wind the print-out onto a spool. See “Printer” on page 7-4 for additional information.

Figure 1–6. RECORDER/PRINTER (Option)



ACCESSORIES

The following is a list of Accessories. Below the list is a description of each.

- Floor Loading Ramp
- Hydraulic Low Entry Loading Platform
- Cart Tilt Ramp
- Universal Cage and Pan Processing Rack
- Cage Processing Rack
- Pan Processing Rack
- Manifold Feeder Bottle Rack
- Cage Processing Rack For Central Header System
- Feeder Bottle Baskets
- Stainless Steel Pit Plates

Floor Loading Ramp

A stainless steel ramp(s), with a non-skid surface, is provided to permit loading and unloading of floor mounted units.

Hydraulic Low Entry Loading Platform

A stainless steel hydraulic powered lifting platform with a non-skid loading surface is provided to aid in the loading and/or unloading of the washer chamber. The cart or rack is rolled onto the platform. The user operates the platform raising the cart/rack to the level of the chamber floor. The user rolls the rack into the wash chamber for processing. This lifting system eliminates the hazard of pushing or pulling heavy racks up a fixed loading ramp. A separate 30 AMP electrical connection is required.

Cart Tilt Ramp

A stainless steel ramp is installed inside the chamber to incline the carts to permit the most effective draining and drying.

Universal Cage and Pan Processing Rack

A stainless steel rack with an automatic pivoting counterweight is provided to accommodate cages from 5" to 8" in height and pans with a maximum depth of 3". The rack is transported by casters and roller bearings. Rack capacity varies, depending on the model.

Cage Processing Rack

A stainless steel rack is provided to process cages from 5" to 8" in height. The rack is transported by casters and roller bearings. Rack capacity varies, depending on the model.

Pan Processing Rack

A stainless steel rack to process pans with a maximum depth of 3". The rack is 32" wide, 70" high, and 72" long and is transported by casters and roller bearings. Rack capacity: Rabbit Pans - 30.

Manifold Feeder Bottle Rack

A stainless steel manifold, multi-jet type rack is provided for processing feeder bottles. The 8, 16, and 32 oz. bottles can be processed along with the stainless steel baskets used to transport the bottles. The rack is supported by casters and roller bearings and couples to the manifold rack coupling system. The racks can be configured for two, four, or six basket capacity.

Cage Processing Rack For Central Header System

A stainless steel cage rack is provided for processing large volumes of standard mouse cage or rat cages. (Note: Rack to be set up for either mouse or rat cages). The rack is supported by casters and roller bearings

and couples to the manifold rack coupling system. Rack capacity: Mouse Cages - 200, or Rat Cages - 96 or Rabbit Pans - 80.

Feeder Bottle Baskets

Stainless steel bottle baskets are provided for processing 8, 16, or 32 oz. bottles. The baskets are configured either to a 4x6 or a 5x5 bottle pattern.

Stainless Steel Pit Plates

Provided are stainless steel pit plates to be installed in the pit (by others) in lieu of cold rolled steel. Reference pit drawing.

PROCESSING CYCLE DESCRIPTION

A 2100 washer runs the following processing cycle.

Automatic Seven Phase Treatment Cycle

The standard treatment cycle consists of a Prewash, Wash 1, Wash 2, Rinse 1, Rinse 2, Rinse 3, and an Exhaust. All cycle phases are adjustable from 0 - 60 minutes. All wash and rinse treatments are recirculated under pump pressure. The cycle, once activated, is completely automatic. Additional cycle treatment phases are available.

Operation

At the start of the processing period, the user places the load to be cleaned in the chamber, closes the door, selects the desired cycle and presses the cycle start switch. The washer automatically proceeds through the treatment process and alerts the user when the process is complete. The user then opens the chamber door and removes the cleaned load.

Treatment Schedule

PREWASH

Hot water, from house supply, fills the sump, or water remaining in the sump from Rinse 3 of the previous cycle, is recirculated through the jet spray system under pump pressure and pumped to drain upon completion. Phase time and temperature is user programmable, from 0-60 minutes and 120°-190°F respectively.

WASH 1

Hot water, from house supply, fills the sump and wash agent is automatically added. The treatment solution is recirculated through the jet spray system, under pump pressure, and is pumped to drain upon completion. Phase time and temperature is user programmable, from 0-60 minutes and 120°-190°F respectively.

Agent Saver Option: If the agent saver option is selected, the hot agent solution from the agent solution reservoir fills the sump and is recirculated through the jet spray system. At the end of the treatment, the agent solution is returned to the agent solution reservoir.

Soak Option: A subsequent soak period may be programmed from 0-60 minutes, to permit the acid solution to work on the load before proceeding to the second wash and/or rinse treatments. A soak option can only be activated after an acid wash.

NOTE ▶ *When selected, the soak always follows the “Acid” agent wash.*

WASH 2

Hot water, from house supply, fills the sump and wash agent is automatically added. The treatment solution is recirculated through the jet spray system, under pump pressure, and is pumped to drain upon completion. Phase time and temperature is user programmable, from 0-60 minutes and 120°-190°F respectively.

Agent Saver Option: If the agent saver option is selected, the hot agent solution from the agent solution reservoir fills the sump and is recircu-

lated through the jet spray system. At the end of the treatment, the agent solution is returned to the agent solution reservoir.

Soak Option: A subsequent soak period may be programmed from 0-60 minutes, to permit the acid solution to work on the load before proceeding to the rinse treatments. A soak option can only be activated after an acid wash.

NOTE ▶ *When selected, the soak always follows the "Acid" agent wash.*

RINSE 1

Hot water, from house supply, fills the sump and is recirculated through the jet spray system under pump pressure and pumped to drain upon completion. Phase time and temperature is user programmable, from 0-60 minutes and 120°-190°F respectively.

RINSE 2

Hot water, from house supply, fills the sump and is recirculated through the jet spray system under pump pressure and pumped to drain upon completion. Phase time and temperature is user programmable, from 0-60 minutes and 120°-190°F respectively.

RINSE 3

Hot water, from house supply, fills the sump and is recirculated through the jet spray system under pump pressure and pumped to drain upon completion or saved in the sump to be used for the prewash phase of the next cycle. Phase time and temperature is user programmable, from 0-60 minutes and 120°-190°F respectively.

Non-Recirculated Option: Hot water, from house supply, under house pressure is sprayed directly through a separate jet system. Phase time is user programmable from 0-60 minutes.

EXHAUST or VAPOR REMOVAL

Unit stands idle for a sufficient period of time for the facility vent system to remove vapor from within the chamber. Phase time is user programmable from 0-60 minutes.

Air Dry System Option: During the vapor removal phase, the air dry system consists of a forced ambient or heated air manifold to blow residue water off the cages, pans, and racks. Phase time is user programmable from 0-60 minutes.

TEMPERATURE GUARANTEE SYSTEM:

All phases of the wash cycle except Soak and Exhaust have the option to select a Temperature Guarantee Mode. When selected, this causes the unit to fill and spray water normally for that phase, without allowing the main timer to start counting down until the setpoint temperature has been attained. If at any time the sump temperature should fall below the setpoint, the main timer stops until the temperature exceeds the setpoint. Failure to do so in a set period of time generates a "too long to heat" alarm.

Section 2 The Control Panel

INTRODUCTION

The Control Panel on this Washer provides the user with an interface linked to the Programmable Logic Controller (PLC) located in the Control Box. Using the Control Panel, the user is able to do:

- Select a processing cycle.
- Program the cycle phase timing.
- Program the cycle phase temperature.
- Start a processing cycle.
- Monitor the status of an ongoing cycle.
- Manually drain the washer's sump.

In addition to the above, supervisory personnel are able to:

- Access load counters and time display
- Protect cycle programming

Your washer has one of the following control panels:

- TOUCH CONTROL PANEL (TCP),
- LED CONTROL PANEL, or
- ELECTRO-MECHANICAL CONTROL PANEL

Information on each control panel follows.

TOUCH CONTROL PANEL (TCP)

Control Screens

The following pages illustrate the available Control Screens. To advance from screen to screen, note that each illustrated screen below contains a gray area. Press the prompt on the screen, as it is highlighted on the illustration, and the next screen will display. Programming a cycle should not be accomplished from this section of the user manual. See “Cycle Programming” on page 2-12.

Figure 2–1. MACHINE/CUSTOMER IDENTIFICATION SCREEN

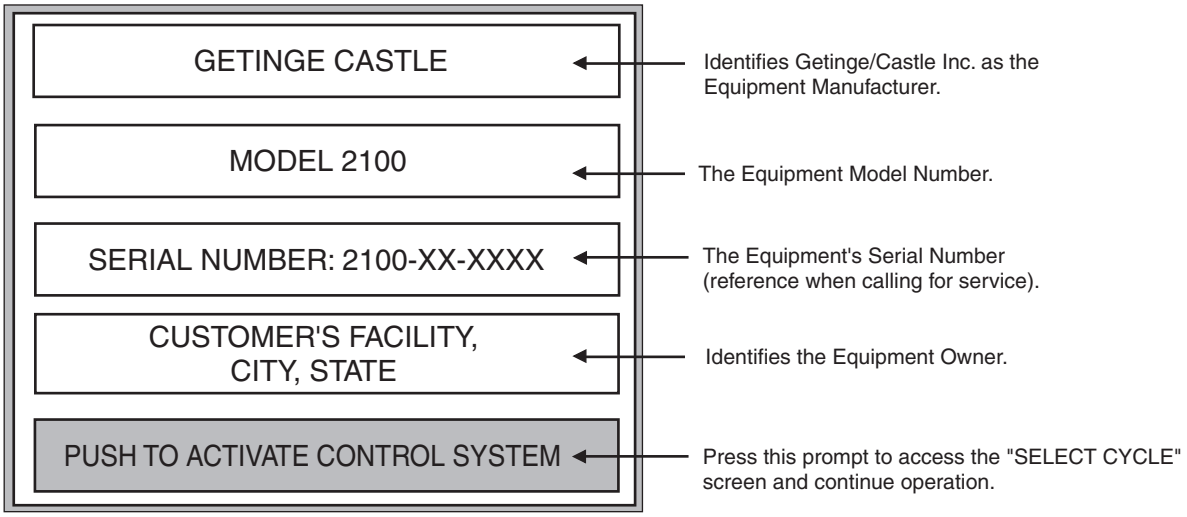

GETINGE CASTLE
Identifies Getinge/Castle Inc. as the Equipment Manufacturer.
MODEL 2100
The Equipment Model Number.
SERIAL NUMBER: 2100-XX-XXXX
The Equipment's Serial Number (reference when calling for service).
CUSTOMER'S FACILITY, CITY, STATE
Identifies the Equipment Owner.
PUSH TO ACTIVATE CONTROL SYSTEM
Press this prompt to access the "SELECT CYCLE" screen and continue operation.

Figure 2–2. CYCLE SELECTION SCREEN

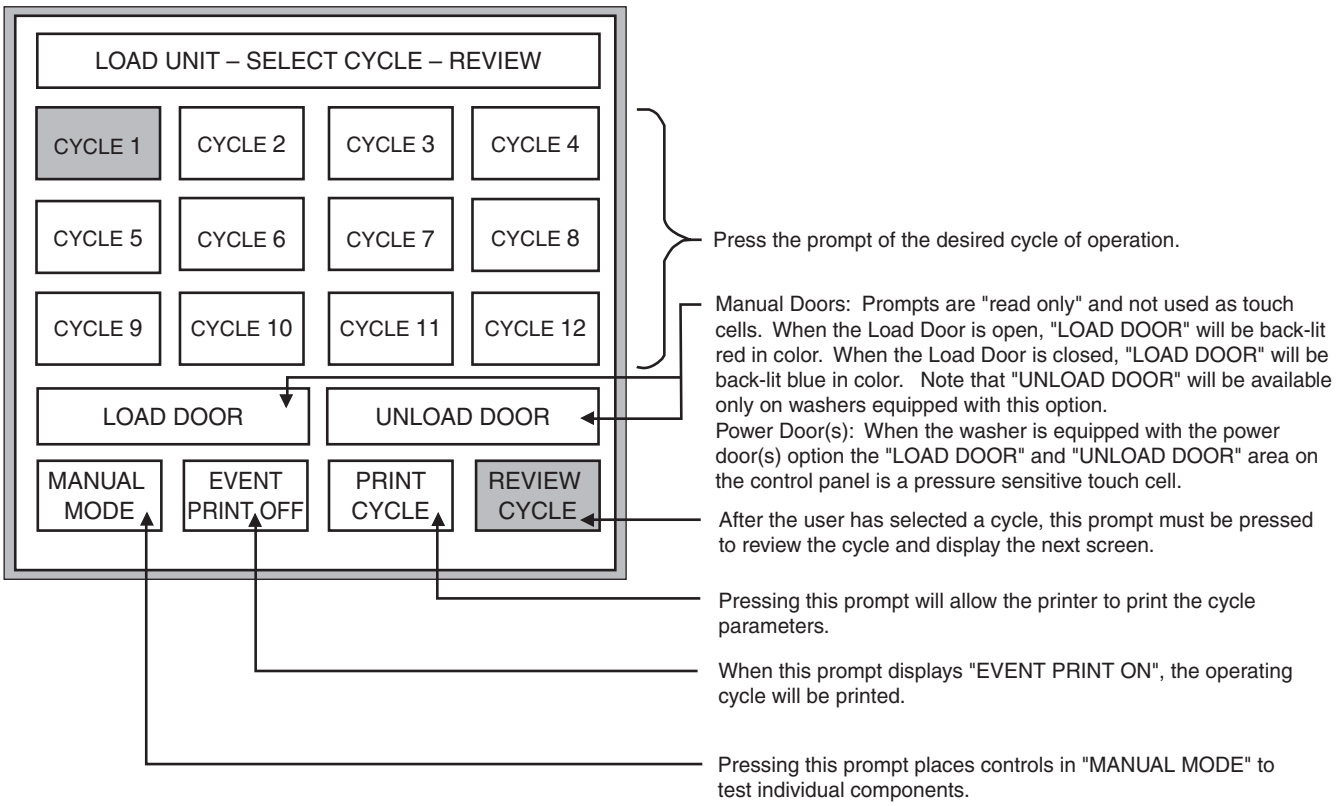

LOAD UNIT – SELECT CYCLE – REVIEW
CYCLE 1
CYCLE 2
CYCLE 3
CYCLE 4
CYCLE 5
CYCLE 6
CYCLE 7
CYCLE 8
CYCLE 9
CYCLE 10
CYCLE 11
CYCLE 12
LOAD DOOR
UNLOAD DOOR
MANUAL MODE
EVENT PRINT OFF
PRINT CYCLE
REVIEW CYCLE
Press the prompt of the desired cycle of operation.
Manual Doors: Prompts are "read only" and not used as touch cells. When the Load Door is open, "LOAD DOOR" will be back-lit red in color. When the Load Door is closed, "LOAD DOOR" will be back-lit blue in color. Note that "UNLOAD DOOR" will be available only on washers equipped with this option.
Power Door(s): When the washer is equipped with the power door(s) option the "LOAD DOOR" and "UNLOAD DOOR" area on the control panel is a pressure sensitive touch cell.
After the user has selected a cycle, this prompt must be pressed to review the cycle and display the next screen.
Pressing this prompt will allow the printer to print the cycle parameters.
When this prompt displays "EVENT PRINT ON", the operating cycle will be printed.
Pressing this prompt places controls in "MANUAL MODE" to test individual components.

Figure 2–3. REVIEW PROGRAMMED PHASES SCREEN

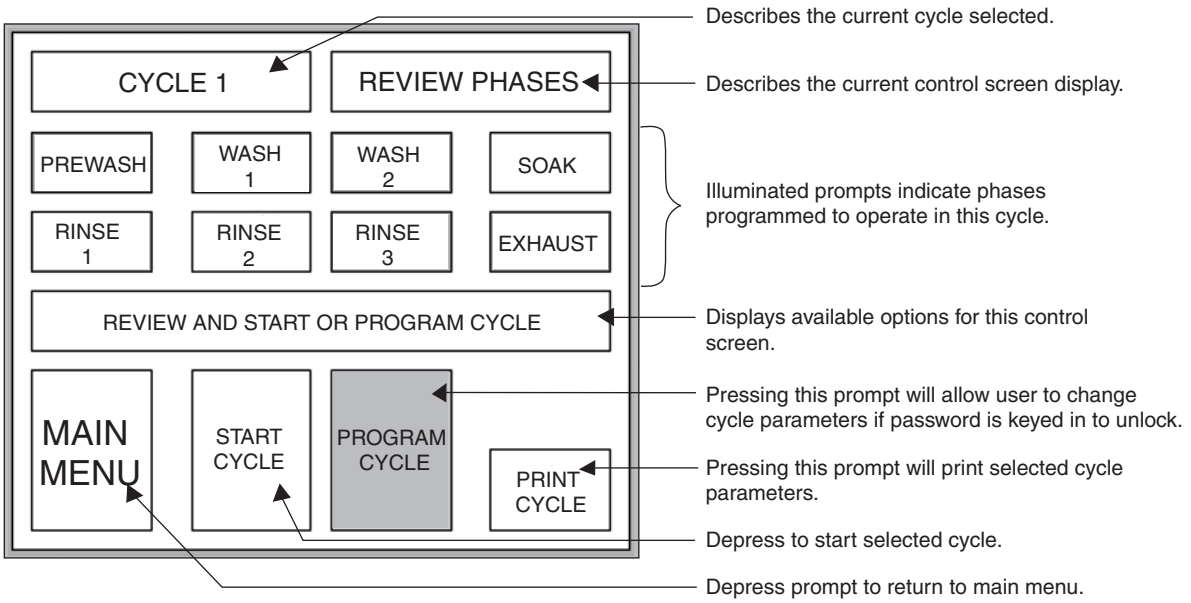

CYCLE 1
REVIEW PHASES
PREWASH
WASH 1
WASH 2
SOAK
RINSE 1
RINSE 2
RINSE 3
EXHAUST
REVIEW AND START OR PROGRAM CYCLE
MAIN MENU
START CYCLE
PROGRAM CYCLE
PRINT CYCLE
Describes the current cycle selected.
Describes the current control screen display.
Illuminated prompts indicate phases programmed to operate in this cycle.
Displays available options for this control screen.
Pressing this prompt will allow user to change cycle parameters if password is keyed in to unlock.
Pressing this prompt will print selected cycle parameters.
Depress to start selected cycle.
Depress prompt to return to main menu.

Figure 2–4. PASSWORD SCREEN

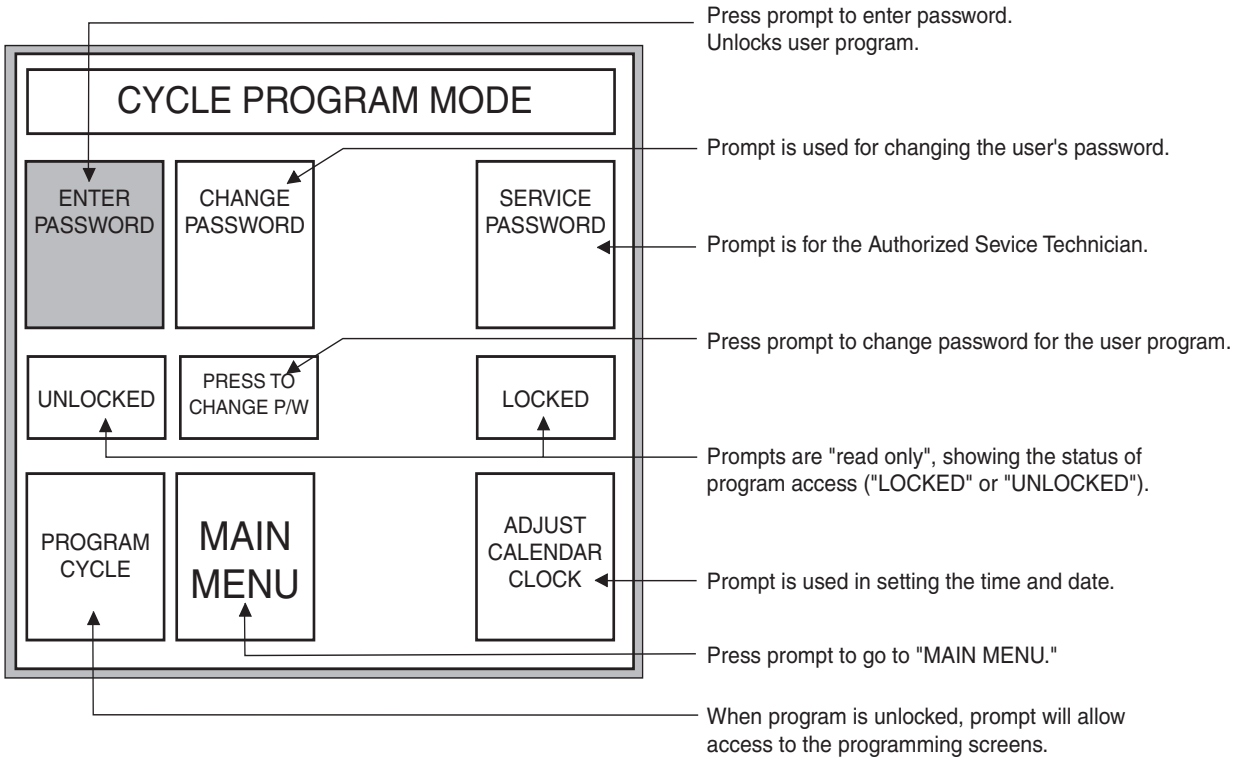
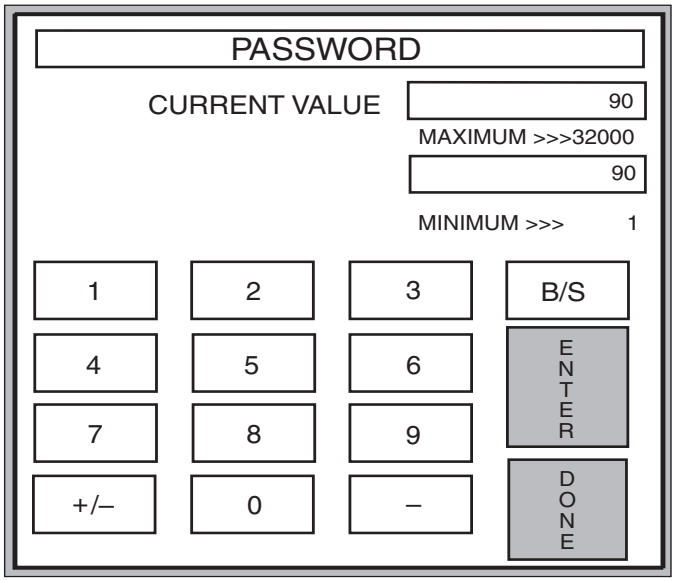

CYCLE PROGRAM MODE
ENTER PASSWORD
CHANGE PASSWORD
SERVICE PASSWORD
UNLOCKED
PRESS TO CHANGE P/W
LOCKED
PROGRAM CYCLE
MAIN MENU
ADJUST CALENDAR CLOCK
Press prompt to enter password. Unlocks user program.
Prompt is used for changing the user's password.
Prompt is for the Authorized Sevice Technician.
Press prompt to change password for the user program.
Prompts are "read only", showing the status of program access ("LOCKED" or "UNLOCKED").
Prompt is used in setting the time and date.
Press prompt to go to "MAIN MENU."
When program is unlocked, prompt will allow access to the programming screens.

Figure 2–5. PASSWORD SCREEN



UNLOCKING PASSWORD

1. Enter Password.
2. Press "ENTER".
3. Press "DONE".

   New value must be above minimum and below maximum.
4. Screen will revert back to "PROGRAM CYCLE" screen.

   Screen "UNLOCKED" displays.
5. Press "PROGRAM CYCLE".
6. Program is now accessible to change parameters.

Figure 2–6. PROGRAM CYCLE

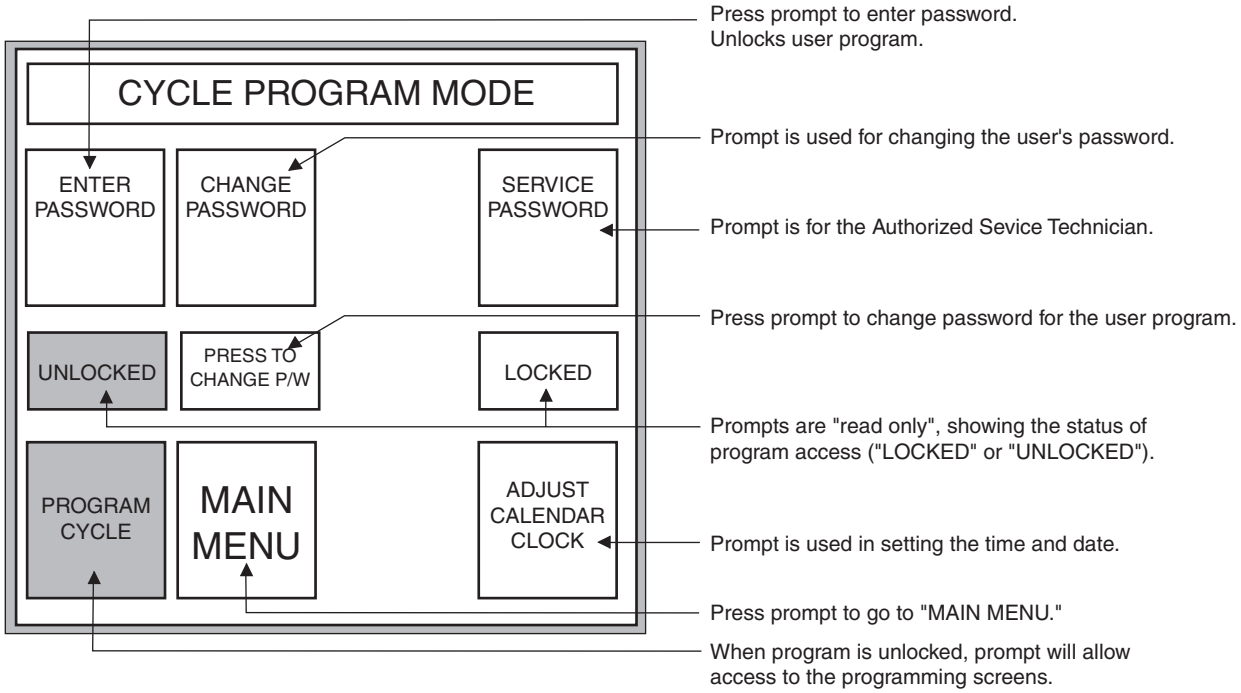

CYCLE PROGRAM MODE
ENTER PASSWORD
CHANGE PASSWORD
SERVICE PASSWORD
UNLOCKED
PRESS TO CHANGE P/W
LOCKED
PROGRAM CYCLE
MAIN MENU
ADJUST CALENDAR CLOCK
Press prompt to enter password. Unlocks user program.
Prompt is used for changing the user's password.
Prompt is for the Authorized Sevice Technician.
Press prompt to change password for the user program.
Prompts are "read only", showing the status of program access ("LOCKED" or "UNLOCKED").
Prompt is used in setting the time and date.
Press prompt to go to "MAIN MENU."
When program is unlocked, prompt will allow access to the programming screens.

Figure 2–7. PROGRAM PREWASH SCREEN

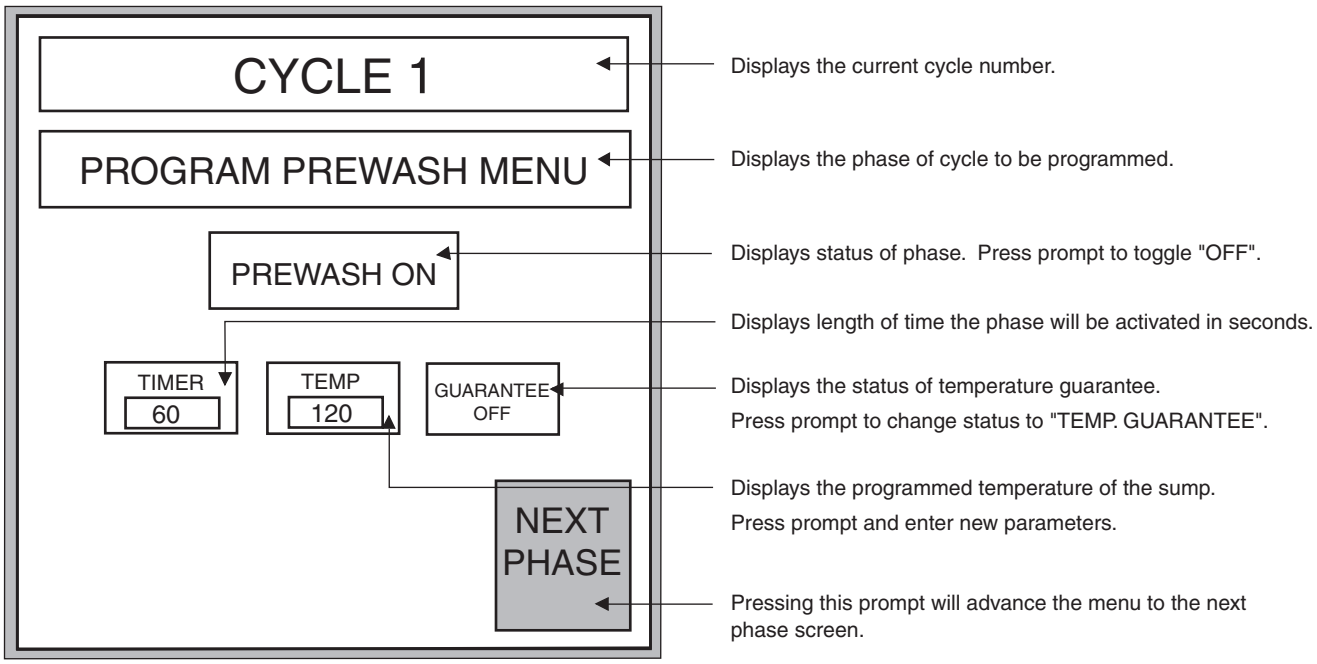

CYCLE 1
PROGRAM PREWASH MENU
PREWASH ON
TIMER
60
TEMP
120
GUARANTEE
OFF
NEXT
PHASE
Displays the current cycle number.
Displays the phase of cycle to be programmed.
Displays status of phase. Press prompt to toggle "OFF".
Displays length of time the phase will be activated in seconds.
Displays the status of temperature guarantee.
Press prompt to change status to "TEMP. GUARANTEE".
Displays the programmed temperature of the sump.
Press prompt and enter new parameters.
Pressing this prompt will advance the menu to the next phase screen.

Figure 2–8. PROGRAM WASH #1 SCREEN

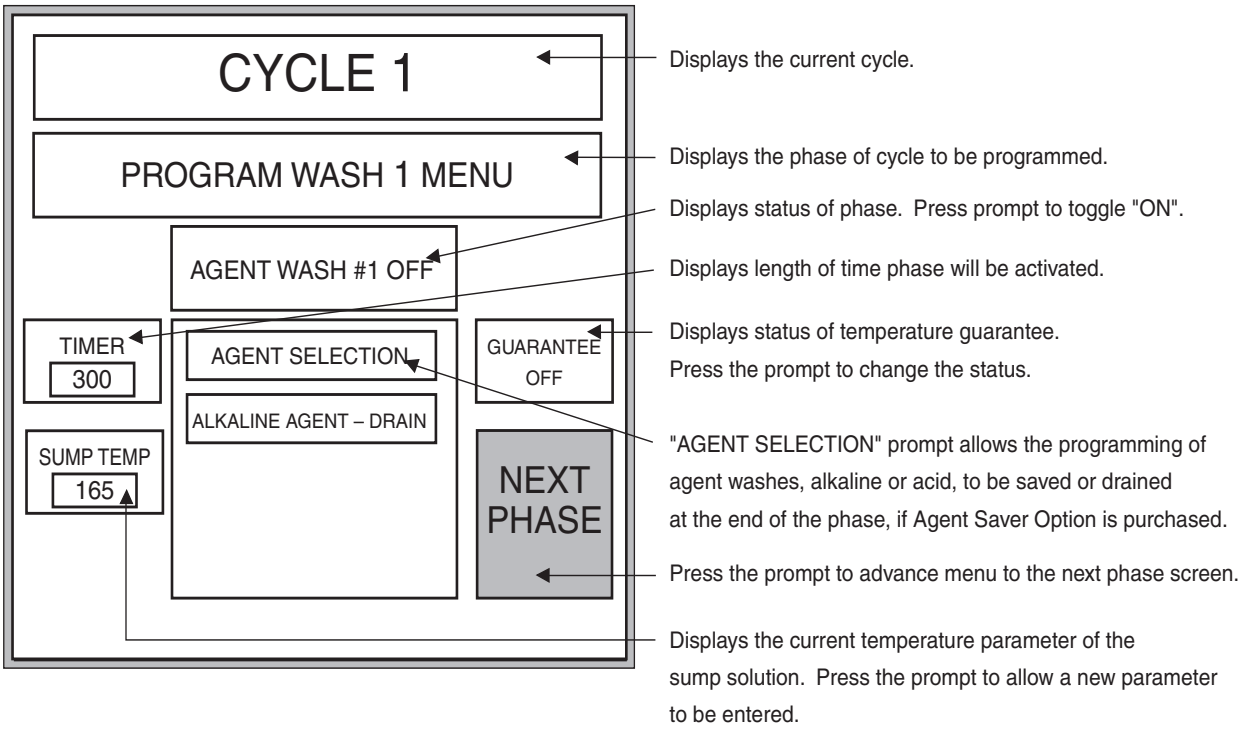

CYCLE 1
PROGRAM WASH 1 MENU
AGENT WASH #1 OFF
TIMER
300
AGENT SELECTION
ALKALINE AGENT – DRAIN
GUARANTEE
OFF
SUMP TEMP
165
NEXT
PHASE
Displays the current cycle.
Displays the phase of cycle to be programmed.
Displays status of phase. Press prompt to toggle "ON".
Displays length of time phase will be activated.
Displays status of temperature guarantee.
Press the prompt to change the status.
"AGENT SELECTION" prompt allows the programming of
agent washes, alkaline or acid, to be saved or drained
at the end of the phase, if Agent Saver Option is purchased.
Press the prompt to advance menu to the next phase screen.
Displays the current temperature parameter of the
sump solution. Press the prompt to allow a new parameter
to be entered.

Figure 2–9. PROGRAM WASH #2 SCREEN

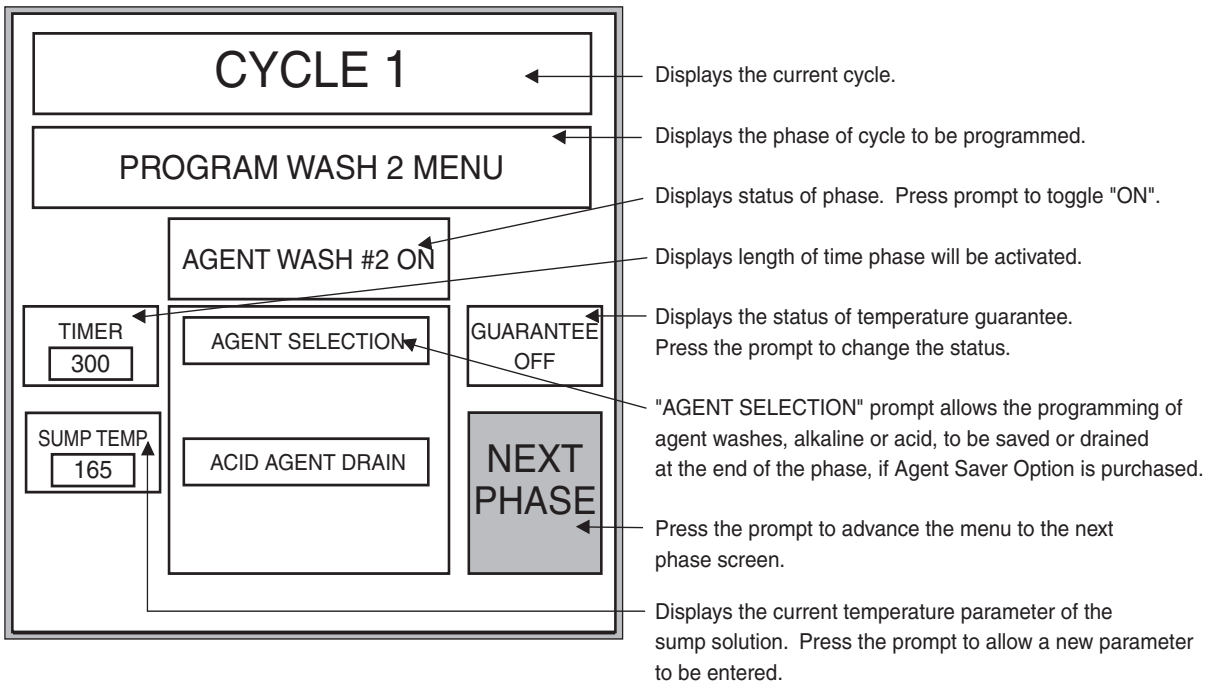

CYCLE 1
PROGRAM WASH 2 MENU
AGENT WASH #2 ON
TIMER
300
AGENT SELECTION
ACID AGENT DRAIN
GUARANTEE
OFF
SUMP TEMP
165
NEXT
PHASE
Displays the current cycle.
Displays the phase of cycle to be programmed.
Displays status of phase. Press prompt to toggle "ON".
Displays length of time phase will be activated.
Displays the status of temperature guarantee.
Press the prompt to change the status.
"AGENT SELECTION" prompt allows the programming of
agent washes, alkaline or acid, to be saved or drained
at the end of the phase, if Agent Saver Option is purchased.
Press the prompt to advance the menu to the next
phase screen.
Displays the current temperature parameter of the
sump solution. Press the prompt to allow a new parameter
to be entered.

Figure 2–10. PROGRAM SOAK SCREEN

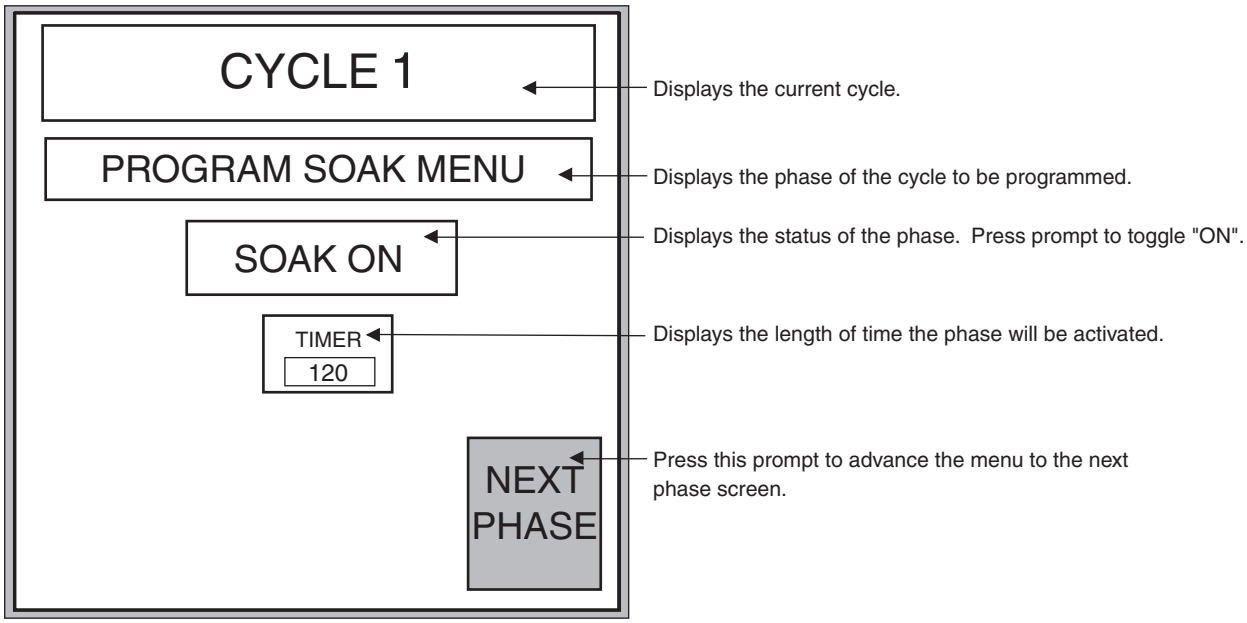

CYCLE 1
PROGRAM SOAK MENU
SOAK ON
TIMER
120
NEXT PHASE
Displays the current cycle.
Displays the phase of the cycle to be programmed.
Displays the status of the phase. Press prompt to toggle "ON".
Displays the length of time the phase will be activated.
Press this prompt to advance the menu to the next phase screen.

Figure 2–11. PROGRAM RINSE #1 SCREEN

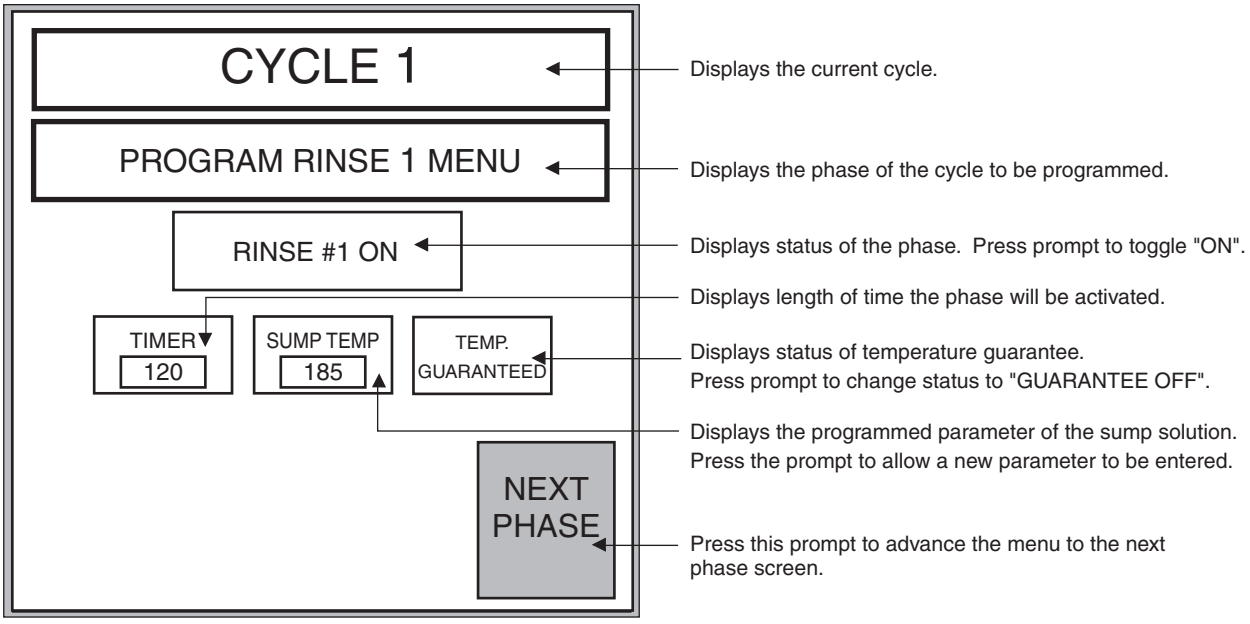

CYCLE 1
PROGRAM RINSE 1 MENU
RINSE #1 ON
TIMER
120
SUMP TEMP
185
TEMP.
GUARANTEED
NEXT PHASE
Displays the current cycle.
Displays the phase of the cycle to be programmed.
Displays status of the phase. Press prompt to toggle "ON".
Displays length of time the phase will be activated.
Displays status of temperature guarantee.
Press prompt to change status to "GUARANTEE OFF".
Displays the programmed parameter of the sump solution.
Press the prompt to allow a new parameter to be entered.
Press this prompt to advance the menu to the next phase screen.

Figure 2–12. PROGRAM RINSE #2 SCREEN

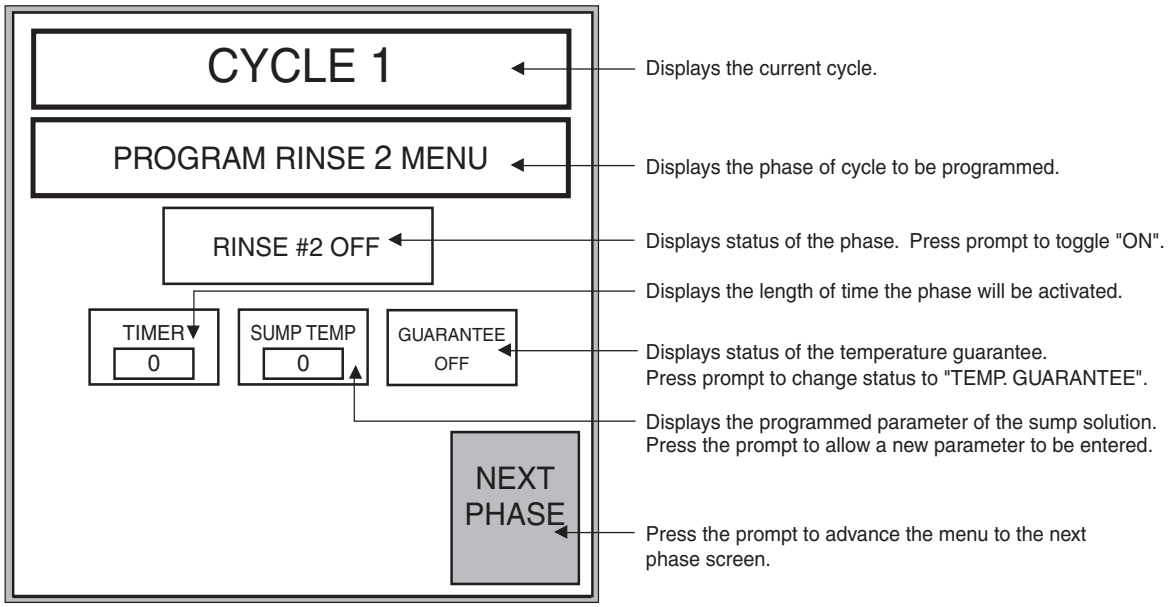

CYCLE 1
PROGRAM RINSE 2 MENU
RINSE #2 OFF
TIMER
0
SUMP TEMP
0
GUARANTEE
OFF
NEXT
PHASE
Displays the current cycle.
Displays the phase of cycle to be programmed.
Displays status of the phase. Press prompt to toggle "ON".
Displays the length of time the phase will be activated.
Displays status of the temperature guarantee.
Press prompt to change status to "TEMP. GUARANTEE".
Displays the programmed parameter of the sump solution.
Press the prompt to allow a new parameter to be entered.
Press the prompt to advance the menu to the next
phase screen.

Figure 2–13. PROGRAM RINSE #3 SCREEN

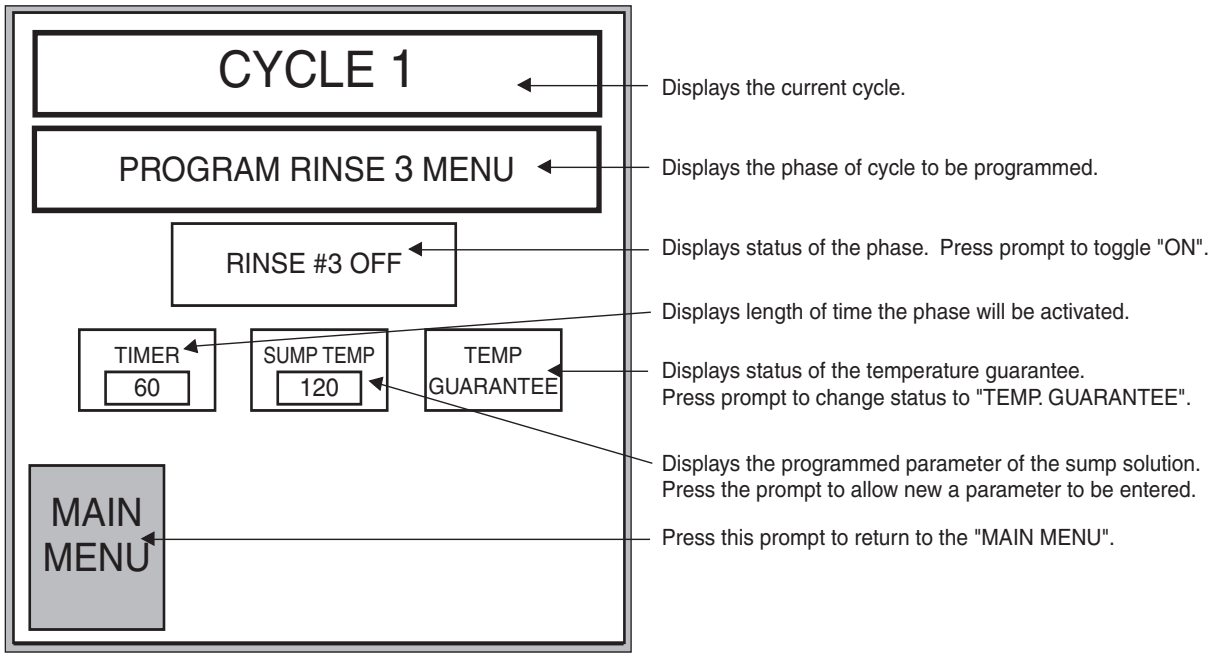
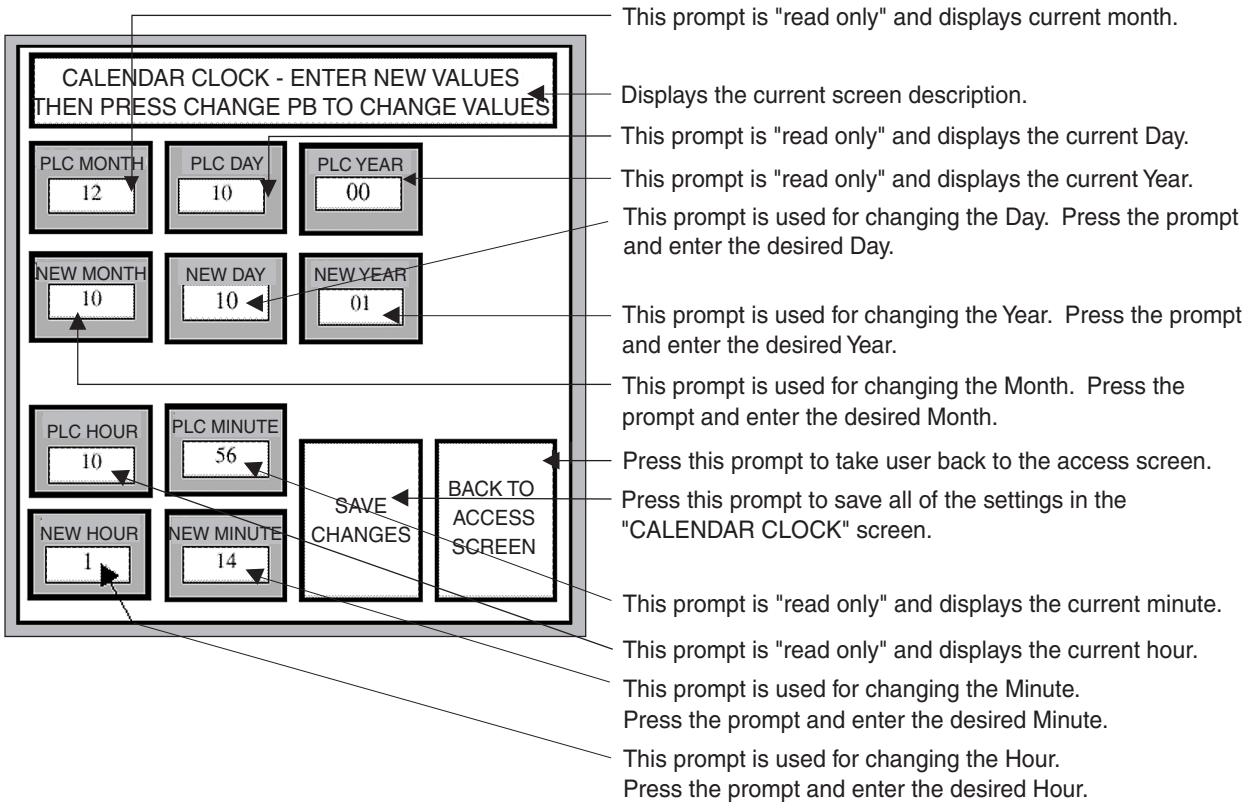

CYCLE 1
PROGRAM RINSE 3 MENU
RINSE #3 OFF
TIMER
60
SUMP TEMP
120
TEMP
GUARANTEE
MAIN
MENU
Displays the current cycle.
Displays the phase of cycle to be programmed.
Displays status of the phase. Press prompt to toggle "ON".
Displays length of time the phase will be activated.
Displays status of the temperature guarantee.
Press prompt to change status to "TEMP. GUARANTEE".
Displays the programmed parameter of the sump solution.
Press the prompt to allow new a parameter to be entered.
Press this prompt to return to the "MAIN MENU".

Figure 2–14. CALENDAR CLOCK

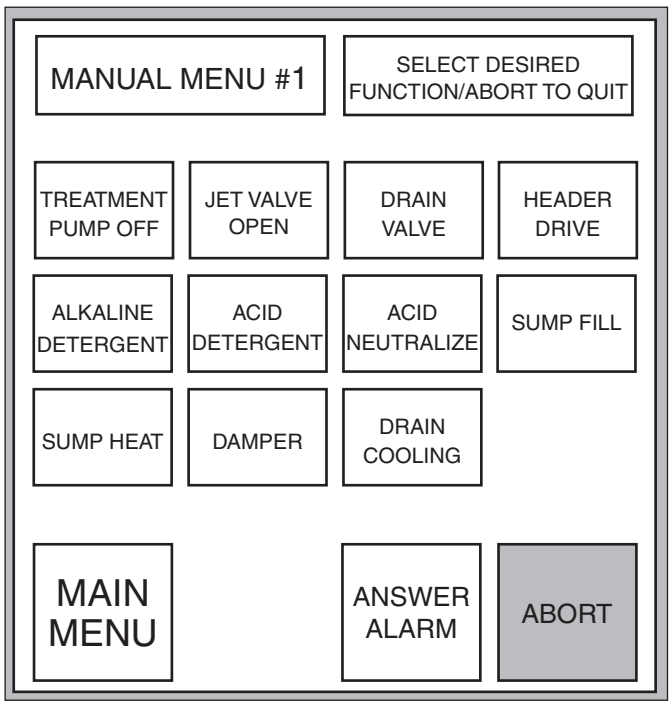

CALENDAR CLOCK - ENTER NEW VALUES
THEN PRESS CHANGE PB TO CHANGE VALUES
PLC MONTH
12
PLC DAY
10
PLC YEAR
00
NEW MONTH
10
NEW DAY
10
NEW YEAR
01
PLC HOUR
10
PLC MINUTE
56
NEW HOUR
1
NEW MINUTE
14
SAVE CHANGES
BACK TO ACCESS SCREEN
This prompt is "read only" and displays current month.
Displays the current screen description.
This prompt is "read only" and displays the current Day.
This prompt is "read only" and displays the current Year.
This prompt is used for changing the Day. Press the prompt and enter the desired Day.
This prompt is used for changing the Year. Press the prompt and enter the desired Year.
This prompt is used for changing the Month. Press the prompt and enter the desired Month.
Press this prompt to take user back to the access screen.
Press this prompt to save all of the settings in the "CALENDAR CLOCK" screen.
This prompt is "read only" and displays the current minute.
This prompt is "read only" and displays the current hour.
This prompt is used for changing the Minute. Press the prompt and enter the desired Minute.
This prompt is used for changing the Hour. Press the prompt and enter the desired Hour.

ACCESSING THE CALENDAR CLOCK SCREEN

1. From the CYCLE SELECTION screen, press “REVIEW CYCLE”.
2. From the REVIEWED PROGRAMMED PHASES screen, press, “PROGRAM CYCLE”.
3. On the Password screen, press “ADJUST CALENDAR CLOCK”.

Manual Mode #1 Cycle Screen Description

Figure 2–15. MANUAL MODE EXAMPLE



Press any prompt to activate the selected components. Press the prompt again to stop selected component or "ABORT" to stop all of the components activated.

All safeties are intact in the manual mode. The wash or rinse pumps will not operate if there is not enough water in the sump. The Wash pump will operate for 60 seconds without water.

Sump fill will not activate if sump is full.
Sump fill will stop when sump is full.

ACCESSING THE MANUAL MODE SCREEN

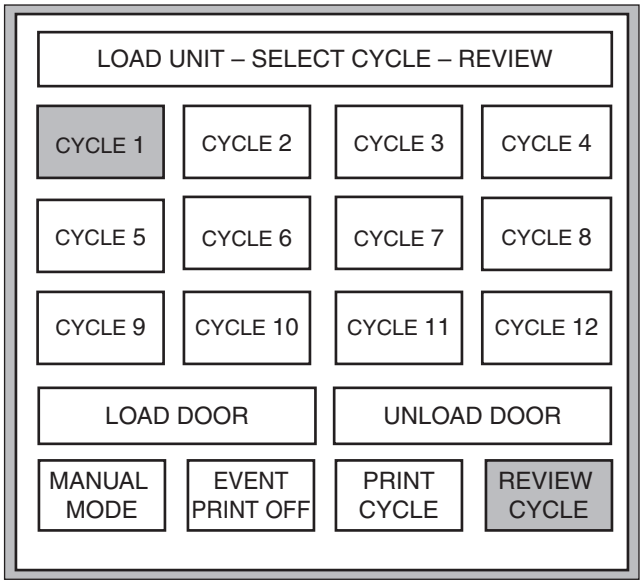
1. From the CUSTOMER IDENTIFICATION screen, press “PUSH TO ACTIVATE CONTROL SYSTEM”.
2. From the CYCLE SELECTION screen, press “MANUAL MODE”.

Cycle Programming

Example: Programming a Sample Cycle

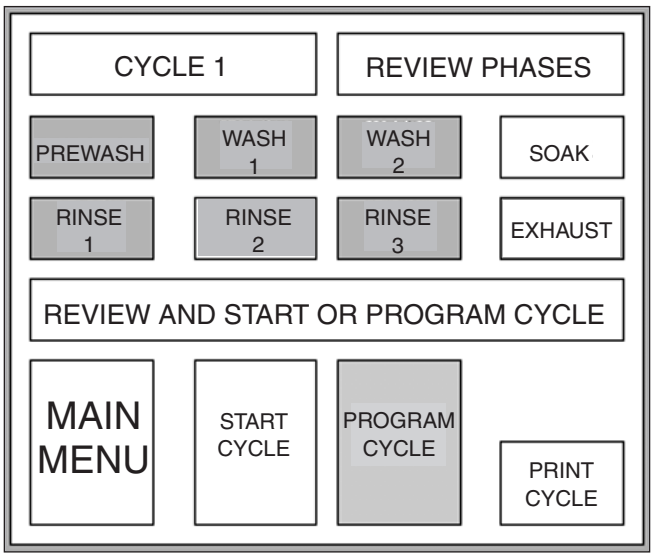
The following is a SAMPLE cycle along with detailed instructions on how to program the cycle for your reference.

PHASE	TIME (seconds)	TEMPERATURE (°F)	TEMPERATURE GUARANTEE	SAVE/DUMP TO DRAIN	AGENT	TANK TEMP (°F)
Sample Cycle 1—Touch Control Panel						
Prewash	60	120	Off			
Wash 1	300	165	Off		Alkaline Save	
Soak	none					
Wash 2	300	165	Off		Acid Drain	
Soak	none					
Rinse 1	120	185	On			
Rinse 2	None	Off	Off			
Rinse 3	60	180	Off			



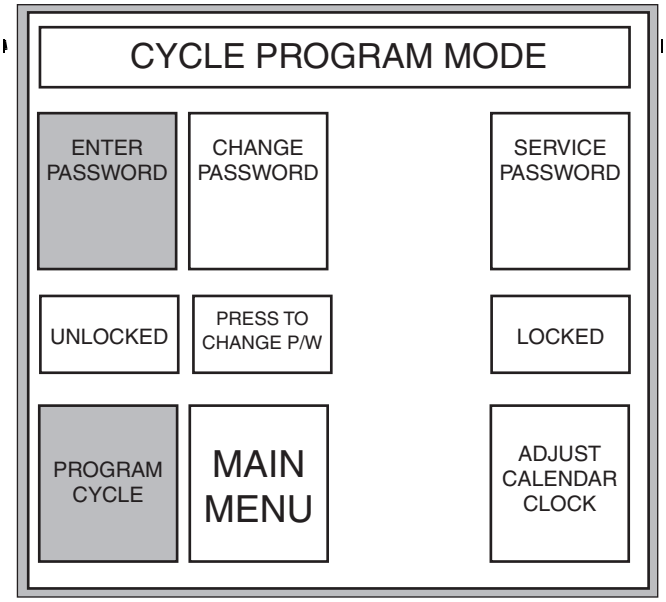
CYCLE SELECTION SCREEN:
Programmer should-

Ø Press the “CYCLE 1" prompt.
Ø Press the “REVIEW CYCLE” prompt.



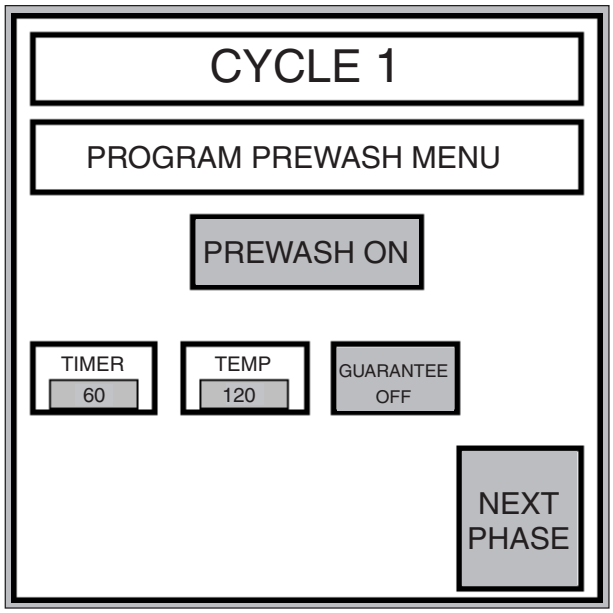
CYCLE SELECTION SCREEN:
Programmer should-

Ø Press the “PROGRAM CYCLE” prompt.



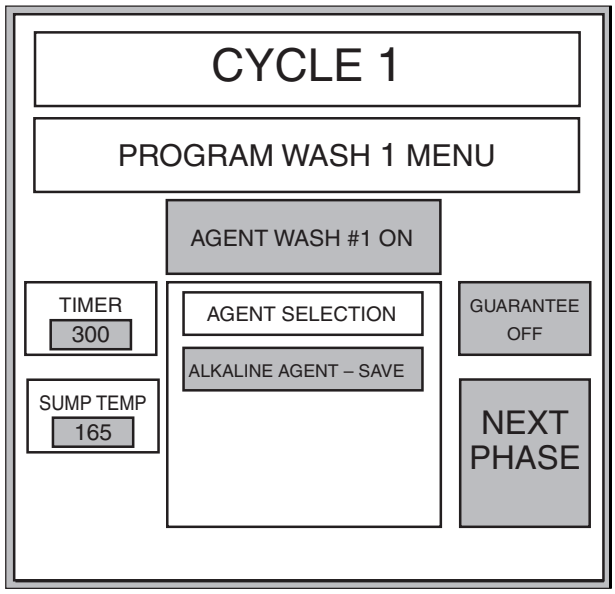
CYCLE SELECTION SCREEN:
Programmer should-

Ø Press the “ENTER PASSWORD” prompt.
Ø Enter the correct password “12345”.
Ø Press the “ENTER” prompt.
Ø Press the “DONE” prompt. This unlocks the system.
Ø Press the “PROGRAM CYCLE” prompt.



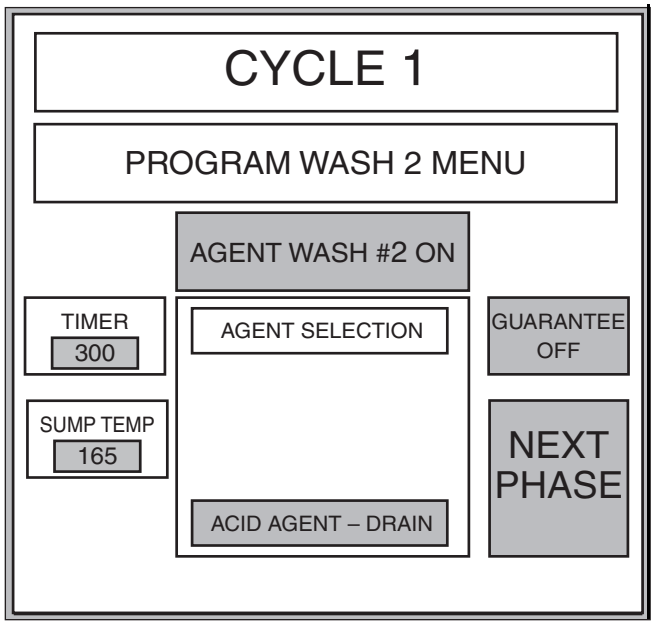
CYCLE SELECTION SCREEN:
Programmer should-

Ø If “PREWASH OFF” is displayed, press “PREWASH OFF” prompt to change the phase to “PREWASH ON”.
Ø Press the “TIMER” prompt and set the phase time to 60 seconds.
Ø Press the “TEMP” prompt and set the temperature to 120°F.
Ø If “TEMP. GUARANTEE” is displayed, press “TEMP. GUARANTEE” to change the status to “GUARANTEE OFF”.
Ø Press the “NEXT PHASE” prompt.



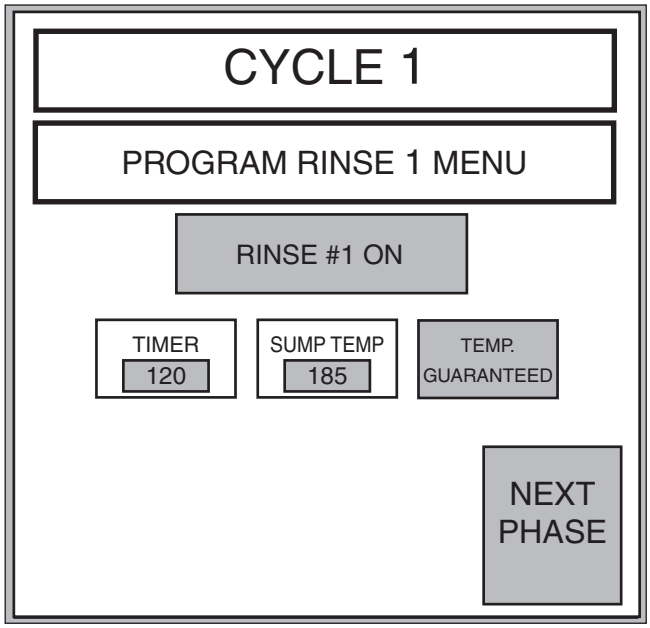
CYCLE SELECTION SCREEN:
Programmer should-

Ø If “AGENT WASH #1 OFF” is displayed, press “AGENT WASH #1 OFF” prompt to change the phase to “AGENT WASH #1 ON”.
Ø Press the “TIMER” prompt and set phase time to 300 seconds.
Ø Press the “SUMP TEMP” prompt and set the phase temp to 165°F.
Ø If “TEMP. GUARANTEE” is displayed, press “TEMP. GUARANTEE” prompt and change the phase to “GUARANTEE OFF”.
Ø Press the “AGENT SELECTION” prompt to select “ALKALINE AGENT – SAVE”.
Ø Press the “NEXT PHASE” prompt to continue.



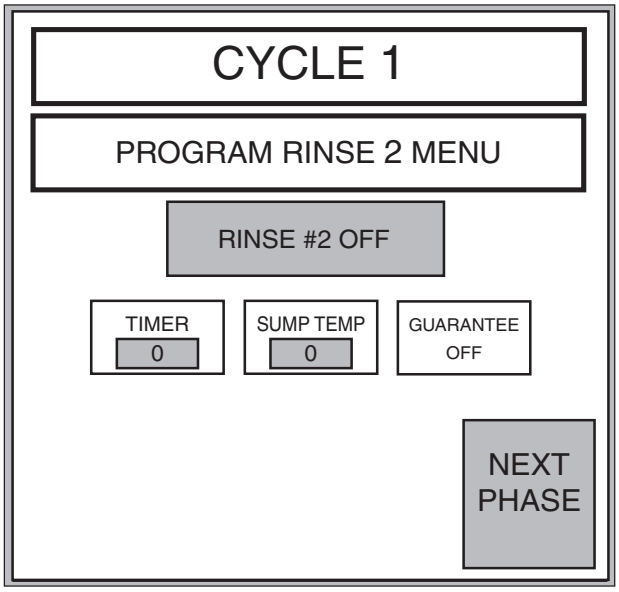
CYCLE SELECTION SCREEN:
Programmer should-

Ø If “AGENT WASH #2 OFF” is displayed, press the “AGENT WASH #2 OFF” prompt to change the phase to “AGENT WASH #2 ON”.
Ø Press the “TIMER” prompt and set the phase time to 300 seconds.
Ø Press “SUMP TEMP” and set the phase temperature to 165°F.
Ø If “TEMP. GUARANTEE” is displayed, press “TEMP. GUARANTEE” prompt to change the phase to “GUARANTEE OFF”.
Ø Press the “AGENT SELECTION” prompt to select “ACID AGENT – DRAIN”.
Ø Press the “NEXT PHASE” prompt to continue.



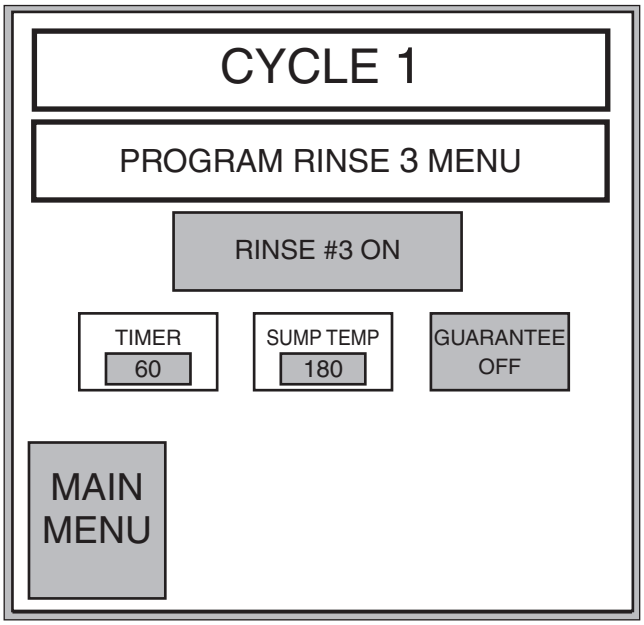
CYCLE SELECTION SCREEN:
Programmer should-

Ø If “RINSE #1 OFF” is displayed, press the “RINSE #1 OFF” prompt to change the phase to “RINSE #1 ON”.
Ø Press the “TIMER” prompt and set the phase time to 120 seconds.
Ø Press the “SUMP TEMP.” prompt and set the phase temp to 185°F.
Ø If “GUARANTEE OFF” is displayed, press “GUARANTEE OFF” prompt to change the phase to “TEMP. GUARANTEE”.
Ø Press the “NEXT PHASE” prompt to continue.



CYCLE SELECTION SCREEN:
Programmer should-

Ø If “RINSE #2 ON” is displayed, press the “RINSE #2 ON” prompt the phase to “RINSE #2 OFF”.
Ø Press the “Next Phase” prompt to continue.

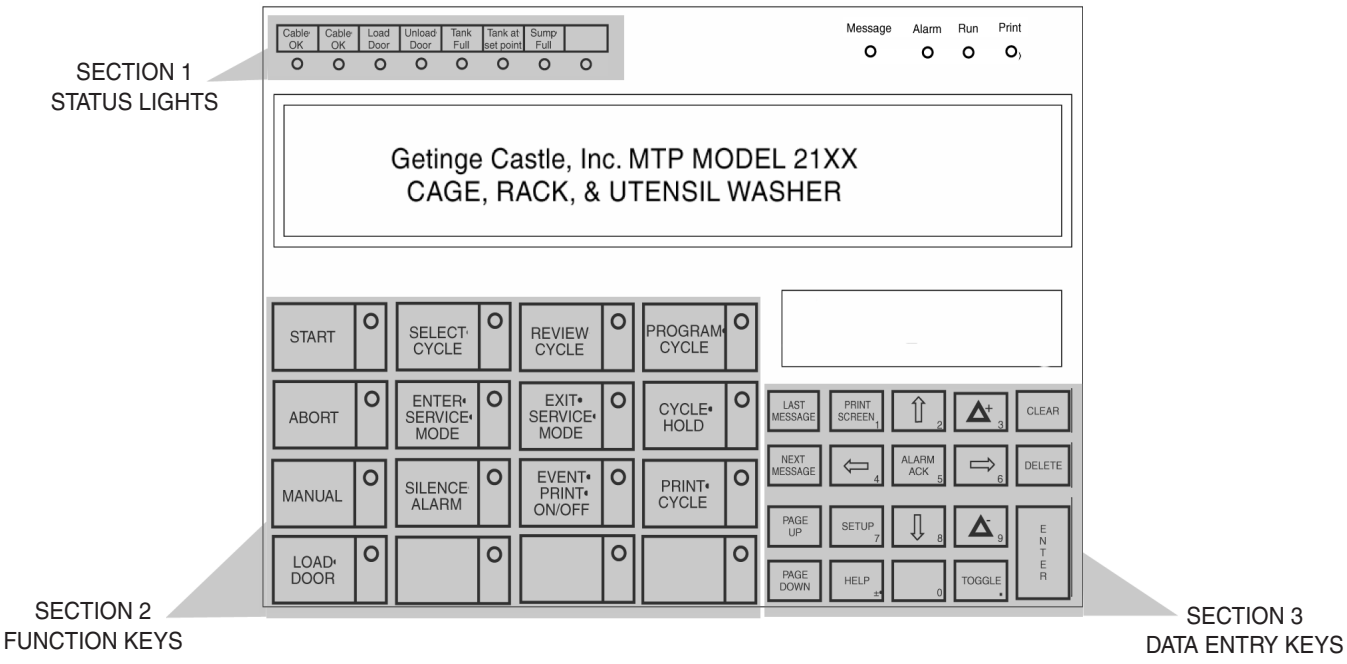


CYCLE SELECTION SCREEN:
Programmer should-

Ø If “RINSE #3 OFF” is displayed, press the “RINSE #3 OFF” prompt to change the phase to “RINSE #3 ON”.
Ø Press the “TIMER” prompt and set the phase time to 60 seconds.
Ø Press the “SUMP TEMP” prompt and set the phase temp to 180°F.
Ø If “TEMP GUARANTEE” is displayed, press the “TEMP GUARANTEE” prompt to change the phase to “GUARANTEE OFF”.
Ø Press the “MAIN MENU” prompt to continue.

LED CONTROL PANEL

Key Locations

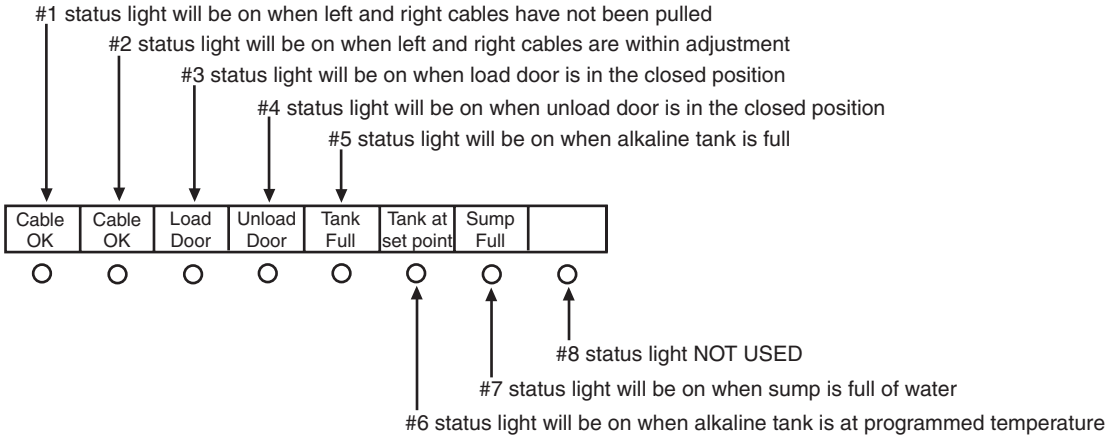


The above screen has been separated into 3 sections

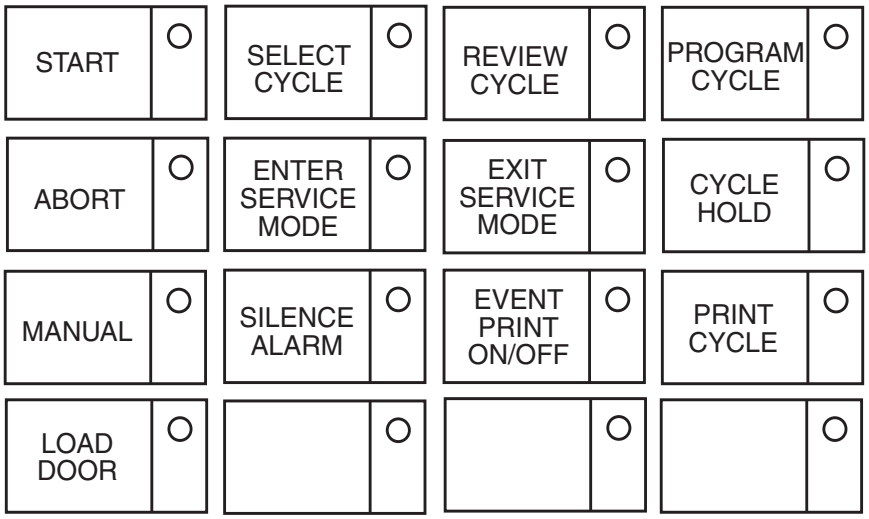
- Section 1 Status Lights
- Section 2 Function Keys
- Section 3 Data Entry Keys

Information on each section follows.

Section 1— Status lights

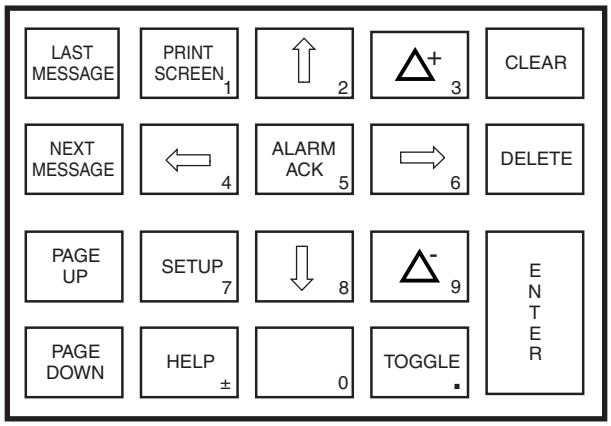

#1 status light will be on when left and right cables have not been pulled
#2 status light will be on when left and right cables are within adjustment
#3 status light will be on when load door is in the closed position
#4 status light will be on when unload door is in the closed position
#5 status light will be on when alkaline tank is full
Cable OK
Cable OK
Load Door
Unload Door
Tank Full
Tank at set point
Sump Full
#8 status light NOT USED
#7 status light will be on when sump is full of water
#6 status light will be on when alkaline tank is at programmed temperature

Section 2— Function keys



FUNCTION KEY	FUNCTION
START	Start the selected cycle.
ABORT	Stop all functions of washer.
MANUAL	Enter the manual mode.
LOAD DOOR	Open or close load door.
SELECT CYCLE	Access cycle selection screen.
ENTER SERVICE MODE	For authorized service technician only.
SILENCE ALARM	Silence audible alarm.
REVIEW CYCLE	Review selected cycle.
EXIT SERVICE MODE	Exit service mode and return to stand-by screen.
EVENT PRINT ON/OFF	Record live readings of selected cycle as load is being processed.
PROGRAM CYCLE	Access selected cycles program for parameter changes.
CYCLE HOLD	Stop cycle timer in current phase of operation.
PRINT CYCLE	Print parameters of selected cycle.

Section 3— Data Entry keys



Key/Function		
LAST MESSAGE — Used to review last screen	HELP ± — Not used	- 9 — Used for the #9
NEXT MESSAGE — Used to review next available screen	2 — Used for the #2 or to move cursor up	TOGGLE . — Used to activate components or deactivate components in Manual Mode.
PAGE UP — Used to scroll to previous page	ALARM ACK 5 — Used for the #5	CLEAR — Used to clear old parameters
PAGE DOWN — Used to scroll to next page	8 — Used for the #8 or to move cursor down	DELETE — Not used
PRINT SCREEN 1 — Used for the #1	0 — Used for the #0	ENTER — Used to enter new parameter
4 — Used for the #4 or to move cursor left	+ 3 — Used for the #3	
SETUP 7 — Used for the #7 or place PLC into direct MODEM contact	6 — Used for the #6 or to move cursor right	

Control Sequences

START-UP

Energize the unit. The unit operates a diagnostic test. Once the controller operates the test, the screen displays “Getinge Castle, Inc.”. The programmed unit is now ready to be used or programmed.

OPERATION

At the beginning of the processing period, the user activates the unit for automatic operation. The unit automatically advances to the “READY” state when the required operational conditions are attained.

The operator places the load to be cleaned into the chamber, closes the chamber door, selects the desired cycle, reviews the cycle, and presses the “START” function key on the control panel. The washer automatically proceeds through the treatment process and alerts the user when the process is complete. The user then opens the chamber door and removes the cleaned load.

ALARM

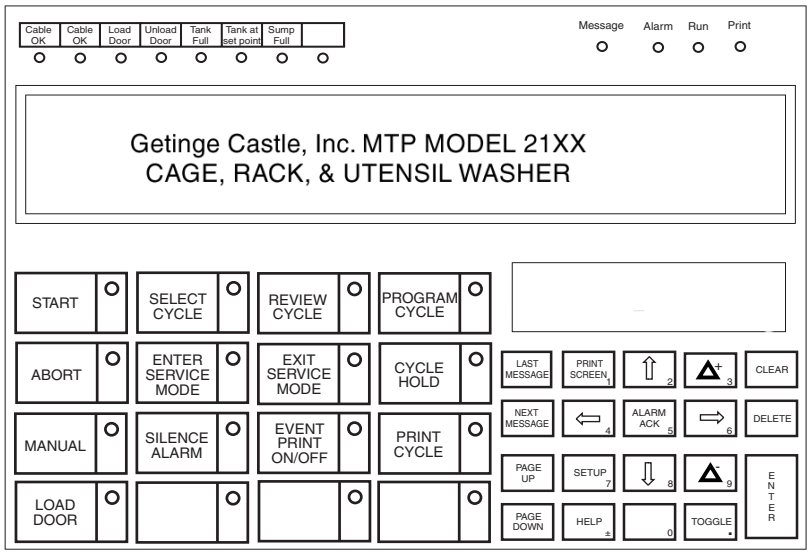
If an alarm should sound at any time, follow the prompt on the display screen and then press “Alarm Ack” on the keypad to turn the sound off, and to return to the program.

HELP

A help screen is provided to assist the user.

Processing Cycle Screen Description

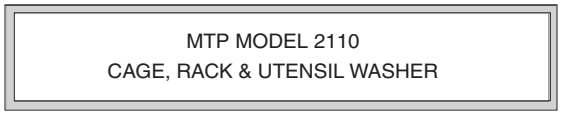
Stand-by Screen



From the STAND-BY SCREEN the user can press the following function keys:

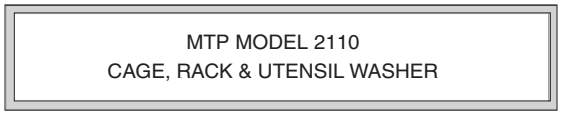
1. “SELECT CYCLE” to select the desired cycle
2. “REVIEW CYCLE” to review parameters of selected cycle.
3. “MANUAL” to test functions of individual components.
4. “PROGRAM CYCLE” to modify the parameters of the selected treatment cycle.

Cycle Selection



From the STAND-BY SCREEN (shown above):

1. Press the “SELECT CYCLE” function key (screen shown below).



2. Press “Clear” on the keypad.
3. Enter the cycle number, ranging from “1”-”12”.

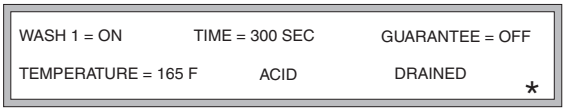
4. Press “ENTER” on the keypad.

Review Cycle

REVIEW SCREEN #1.

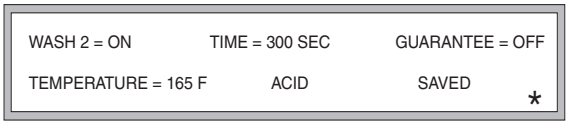
Pressing “Page Down”, user can view all parameters of the selected cycle.

REVIEW SCREEN #2



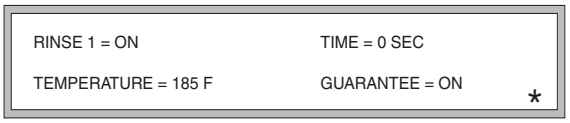
Pressing “Page Down”, user can view all parameters of the selected cycle.

REVIEW SCREEN #3



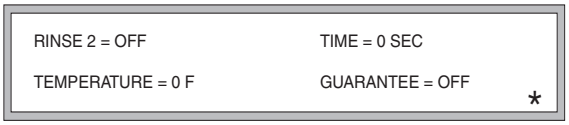
Pressing “Page Down”, user can view all parameters of the selected cycle.

REVIEW SCREEN #4



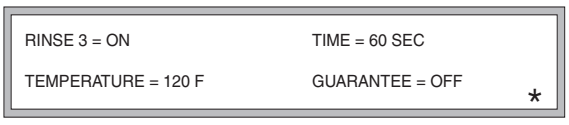
Pressing “Page Down”, user can view all parameters of the selected cycle.

REVIEW SCREEN #5



Pressing “Page Down”, user can view all parameters of the selected cycle.

REVIEW SCREEN #6



Pressing “Page Down”, user can view all parameters of the selected cycle.

REVIEW SCREEN #7

Pressing “Page Down”, the user can view all parameters of the selected cycle.

Manual Mode

Pressing the “MANUAL” function key allows the user or maintenance technician to test the functions of individual components

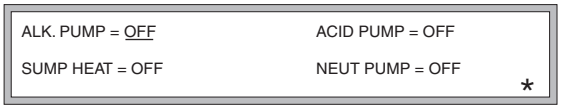
When “MANUAL” is selected, the screen displays individual components that may be activated or deactivated. More than one component may be activated or deactivated at the same time. Press “Page Down” or “Page Up” to view more components.

To activate or deactivate a component in the “MANUAL” Mode:

1. Pressing “Page Down” or “Page Up” until the desired component is displayed.
2. Using the arrow keys, move the cursor to the desired component.
3. To activate the component, press “Toggle” on the keypad (if conditions are correct).
4. To deactivate a component, press “Toggle” on the keypad when the cursor is under the activated component.
5. To deactivate all components and return them to stand-by, press the “ABORT” function key.

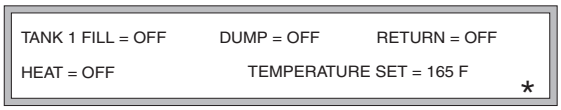
MANUAL SCREEN #1

MANUAL SCREEN #2

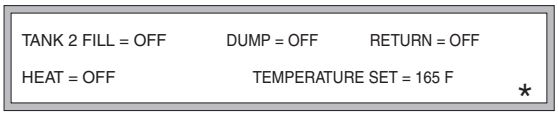


MANUAL SCREEN #3

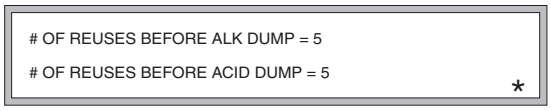
MANUAL SCREEN #4



MANUAL SCREEN #5

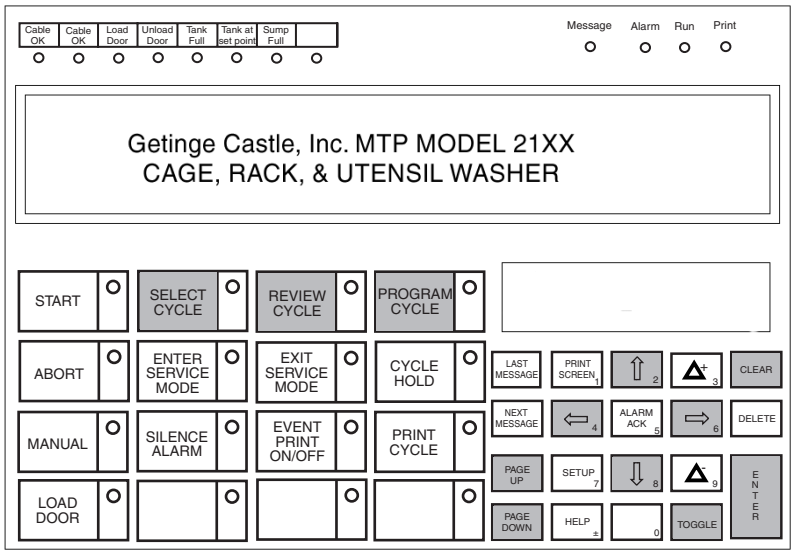


MANUAL SCREEN #6



MANUAL SCREEN #7

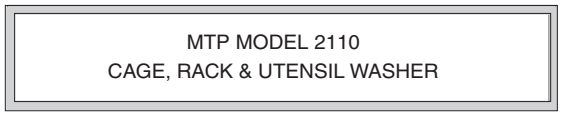
Cycle Programming



From the STAND-BY SCREEN the user can change the parameters of the cycle by doing the following:

1. Press the “SELECT CYCLE” function key.
2. Press “Clear” on the keypad.
3. Enter the cycle number, ranging from “1”-”12”.
4. Press “ENTER” on the keypad.
5. Press “Page Down” or “Page Up” on the keypad until the screen displays the phase were the change needs to be made.
6. Use the arrow keys to move the cursor to the parameter that needs to be changed.
7. Press “Clear” to enter the new time or temperature or “Toggle” to change the status on or off of any phase.
8. When all desired changes have been made, press:
   a. “REVIEW CYCLE” to review the changes, or
   b. “PROGRAM CYCLE” to return to the stand-by screen.
9. If equipped with a printer, press the “PRINT CYCLE” function key to print the new parameters on the printer paper.

Cycle Selection



From the STAND-BY SCREEN (shown above):

1. Press “SELECT CYCLE” (screen shown below).

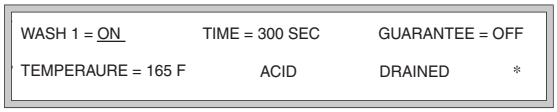
2. Press “Clear”.
3. Enter the cycle number, ranging from “1”-”12”.
4. Press “ENTER”.
5. Press “PROGRAM CYCLE”.
6. Press “Page Up” or “Page Down” until the desired screen appears.

Programming a Cycle

PROGRAM SCREEN #1.

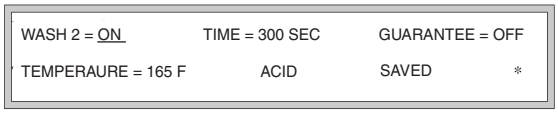
1. Using the arrow keys, move the cursor to the parameter to be changed. Press “Toggle” on the keypad to change the status, on/off.
2. To change the digital parameters, press “Clear”, enter the new setting, and press “ENTER”.

PROGRAM SCREEN #2.



Pressing “Page Down” the user is able to view and change the parameters of the selected cycle

PROGRAM SCREEN #3.



Pressing “Page Down” the user is able to view and change the parameters of the selected cycle.

PROGRAM SCREEN #4.

Pressing “Page Down” the user is able to view and change the parameters of the selected cycle.

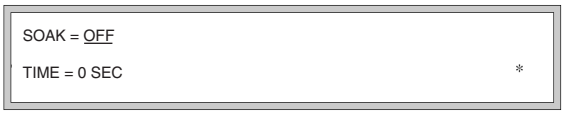
PROGRAM SCREEN #5.

Pressing “Page Down” the user is able to view and change the parameters of the selected cycle.

PROGRAM SCREEN #6.

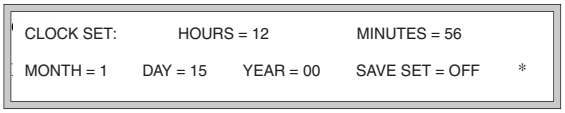
Pressing “Page Down” the user is able to view and change the parameters of the selected cycle.

PROGRAM SCREEN #7.



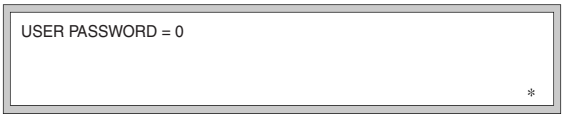
The soak option may only be activated if the ACID WASH has been selected

PROGRAM SCREEN #8.



When setting new parameters for DATE AND TIME, the user must press “Toggle” when the cursor is under the (SAVE SET = OFF) in order to save changes to the date and time.

PROGRAM SCREEN #9.

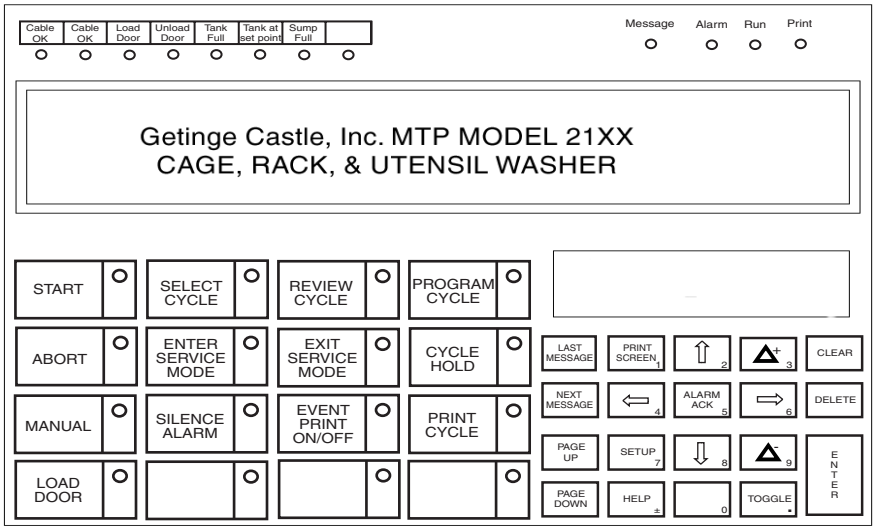


To protect the program from unauthorized changes, enter a password here to lock out access to the PROGRAMING CYCLE phase of the program.

Example: Programming a Sample Cycle

The following is a SAMPLE cycle along with detailed instructions on how to program the cycle for your reference.

PHASE	TIME (seconds)	TEMPERATURE (°F)	TEMPERATURE GUARANTEE	SAVE/DUMP TO DRAIN	AGENT	TANK TEMP (°F)
Sample Cycle 1—LED Control Panel						
Prewash	60	120	Off			
Wash 1	180	165	Guaranteed		Alkaline Save	160
Soak	none					
Wash 2	180	165	Off		Acid Drain	
Soak	none					
Rinse 1	120	185	Guaranteed			
Rinse 2	120	140	Off			
Rinse 3	60	120	Off	Save		



Start-Up

Energize the unit. At this time, the unit goes through a diagnostic test. Once the controller operates this test, the display screen shows, “Model 2100 Cage, Rack and Utensil Washer.” The unit is now in the stand-by mode and ready to be used or programmed.

Programming

1. The user can program up to 12 different cycles. To begin, press the “SELECT CYCLE” function key. At this time, the

user presses “Clear” on the keypad, and enters a cycle number between 1 and 12 to be programmed, and presses “ENTER”. This displays the “REVIEW CYCLE” screen of the phases in that cycle. Pressing “Page Up” and “Page Down” on the keypad, the user can review each phase of that cycle. If the cycle needs to be programmed or changed the user presses “PROGRAM CYCLE”. The user is now ready to program each phase of the sample cycle above.

2. The Prewash phase can be enabled and disabled by pressing “Toggle” on the keypad. Enable the Prewash phase. Press “Toggle” to change the prewash cycle to “PREWASH ON”. Using the arrow keys on the keypad, move the cursor around each item on the phase. Move the cursor to “TIMER” and press “Clear” on the keypad. Enter “60” seconds then press “ENTER” on the keypad. Move the cursor to the “TEMP” and press “Clear” on the keypad, enter “120”, then press “ENTER”. Move the cursor to the “TEMP. GUARANTEE” and change the status to “GUARANTEE OFF”. Press the “NEXT PHASE” prompt. Once the user has completed the prewash phase, press “Page Down” on the keypad to go on to the Wash 1 phase.
3. The Wash 1 phase can be enabled and disabled by pressing “Toggle” on the keypad. Enable the Wash 1 phase. Move the cursor to “TIMER” and press “Clear”, enter “180”, and press “ENTER”. Move the cursor to the “SUMP TEMP” and press “Clear” on the keypad, enter “165”, then press “ENTER” on the keypad. Move the cursor to “GUARANTEE OFF” and press “Toggle” on the keypad to display “TEMP. GUARANTEE”. Move the cursor to the “AGENT SELECTION” and press “AGENT SELECTION” until “ALKALINE AGENT - DRAIN” is displayed. Move the cursor to the “SUMP TEMP” and press “Clear” on the keypad, enter “160”, then press “ENTER” on the keypad.Once the user has completed the Wash 1 phase, press “Page Down” on the keypad to go on to the Wash 2 phase.
4. The Wash 2 phase can be enabled and disabled by pressing “Toggle” on the keypad. Enable the Wash 2 phase. Move the cursor to “TIMER” and press “Clear”, enter “180”, and press “ENTER”. Move the cursor to the “SUMP TEMP” and press “Clear”, enter “165”, then press “ENTER”. Move the cursor to “TEMP GUARANTEE” and press “Toggle” to change the status to “GUARANTEE OFF”. Move the cursor to “AGENT SELECTION” and press “AGENT SELECTION” to change the status to “ACID AGENT - DRAIN”. Once the

user has completed the Wash 2 phase, press “Page Down” on the keypad to go on to the soak phase.

5. The soak phase can be turned off by pressing “Toggle” on the keypad. Note that a soak phase will only follow an Acid phase. Once the user has completed the Wash 2 phase, press “Page Down” on the keypad to go on to the Rinse 1 phase.
6. The Rinse 1 phase can be enabled and disabled by pressing “Toggle” on the keypad. Enable the Rinse 1 phase. Move the cursor to “TIMER” and press “Clear” on the keypad, enter “120”, and press “ENTER”. Move the cursor to the “SUMP TEMP” and press “Clear”, enter “185”, and press “ENTER”. Move the cursor to the “GUARANTEE OFF” and change the status to “TEMP. GUARANTEE”. Once the user has completed the Rinse 1 phase, press “Page Down” on the keypad to go on to the Rinse 2 phase.
7. The Rinse 2 phase can be enabled and disabled by pressing “Toggle” on the keypad. Enable the Rinse 2 phase. Move the cursor to “TIMER” and press “Clear”, enter “120”, and press “ENTER”. Move the cursor to “SUMP TEMP” and press “Clear”, enter “140”, and press “ENTER”. Move the cursor to the “TEMP. GUARANTEE” and change the status to “GUARANTEE OFF”. Once the user has completed the Rinse 2 phase, press “Page Down” on the keypad to go on to the Rinse 3 phase.
8. The Rinse 3 phase can be enabled and disabled by pressing “Toggle” on the keypad. Enable the Rinse 3 phase. Move the cursor to “TIMER” and press “Clear”, enter “60”, and press ENTER”. Move the cursor to “SUMP TEMP” and press “Clear”, enter “120”, and press “ENTER”. Move the cursor to “TEMP. GUARANTEED and change the status to “GUARANTEE OFF”. Once the user has completed the Rinse 3 phase, press “Page Down” keypad to go on to the clock set and password screens or if programming is complete, press the “ABORT” function key to exit the program mode.
9. The clock settings are entered in the same way as time and temperature. Press “Clear” and enter the new setting, and press “ENTER”. Use the arrow keys to move the cursor between settings that need to be changed. Once the user has completed the clock setting, press “Page Down” on the keypad to go on to the password screen or press the “ABORT” function key to exit the program mode.

10. The user can enter a password from 1 to 5 digits, ranging from 1 - 32000. Press “Clear”, enter the new password, and press “ENTER”. Press the “ABORT” function key to exit the program mode.

Starting Wash Cycle

To start the washer, the user can choose a pre-programmed cycle by doing the following:

1. Press the “SELECT CYCLE” function key.
2. Press “Clear” on the keypad.
3. Enter a cycle number ranging from “1”-”12”.
4. Press “ENTER” on the keypad.
5. Press the “START” function key to operate the cycle.

ALARM

If a resettable alarm should sound, do the following:

1. Press the “SILENCE ALARM” function key to turn the alarm off.
2. Follow the prompt on the display screen to solve the problem.
3. Press “Alarm Ack” on the keypad to return to the program.

If a non-resettable alarm should sound, do the following:

1. De-energize the washer using the Electrical Disconnect Switch.
2. Reset the fault. Example: Pull the EMERGENCY STOP Switch or reset the SAFETY CABLE RESET SYSTEM Switch.
3. Energize the washer.

Help

A help screen is provided to assist the user. Pressing “Help” on the keypad gives the user direction on what to do next.

ELECTRO-MECHANICAL CONTROL PANEL

If you own an Electro-Mechanical washer model, see your Customer Manual for the Control Panel Operation.

Section 3 Operating Instructions

GENERAL MACHINE OPERATION

Instructions listed here apply to the daily operation of this Washer. It assumes that the unit has been properly installed and tested: that the chamber is clean, cycle selections have been programmed, the liquid supplies are set up, any optional equipment is ready for operation, etc.

- *BURN HAZARD: Do not open a Washer door during a cycle. This could release hot water through the door opening, resulting in burns to personnel.*

- *RISK OF FALLING: The chamber floor may be slippery when wet. When inside the chamber, walk carefully to maintain balance and avoid injurious falls.*

When loading the unit, make sure that material handling equipment, ware, etc., do not obstruct the back and forth movement of the pneumatically controlled spray manifolds. Careless loading could result in damage to goods, equipment, or Washer components.

Both the Load and Unload Doors on a 2100 Floor Loading Washer, manual door model only, are equipped with safety latches that enable the doors to be forced open from the inside. Should a door close on an individual while inside the Washer chamber, that individual need only apply a physical shove to the latched side of the door to disengage the safety latches and spring the door open.

Start-up Procedure

The following steps should be followed in order to insure proper machine start-up and only after the Authorized Service Technician has checked out and demonstrated the equipment.

1. Insure that all utilities are properly connected and tightened to their respective machine connections.
2. Verify all incoming power supplied by the customer is as listed on the equipment specifications.
3. Verify steam supply meets the requirements listed on the equipment drawings.
4. To energize the washer, rotate the Electrical Disconnect Switch to the ON position.

5. The Touch Control Panel (TCP) immediately illuminates and performs a self-diagnostic test. Once complete the system Stand-By Screen displays and the washer is ready for operation.

Shut-down Procedure

Rotate the Electrical Disconnect Switch to the OFF position.

NOTE

*The Electrical Disconnect Switch de-energizes the washer. The switch disconnects the 3 phase power to the controls of the washer **but does not** remove all electrical power from the control box.*

General Operating Instructions

At the start of the processing period, the user activates the unit for automatic operation by pressing the Control Panel. The unit automatically advances to a Cycle Selection Screen.

The user:

- Places the load to be cleaned in the Chamber and closes the Door.
- Selects the desired cycle.
- Reviews the cycle and presses “Start” on the Control Panel.

The washer automatically proceeds through the treatment schedule and alerts the user when the cycle is complete.

Treatment Schedule

A list of the Treatment Schedule is listed below. For additional information, see “Treatment Schedule” on page 1-12. The process for the wash cycle is as follows:

- Prewash
- Wash 1
- Soak (Active only after an acid wash)
- Wash 2
- Soak (Active only after an acid wash)
- Rinse 1
- Rinse 2
- Rinse 3
- Exhaust or Vapor Removal

The user then opens the Chamber Door and removes the cleaned load. On pass-through units with Door Interlocks, the Unload Door must be closed before the Load Door can be opened for the loading of the next cycle. When the Load Door, is opened, the Control Panel displays the Cycle Selection Screen.

DAILY CHECKLIST

HOT SURFACES: The Chamber could be HOT. Turn OFF the Electrical Disconnect Switch and make sure the Washer is cool before removing the Self-Cleaning Debris Filter Screen for cleaning.

Before operating the Washer each day:

1. Check the Printer Paper Roll, and replace if necessary, see page 7–4.
2. Clean the Primary Debris Filter Screen, see page 4–3.

Operational Readiness

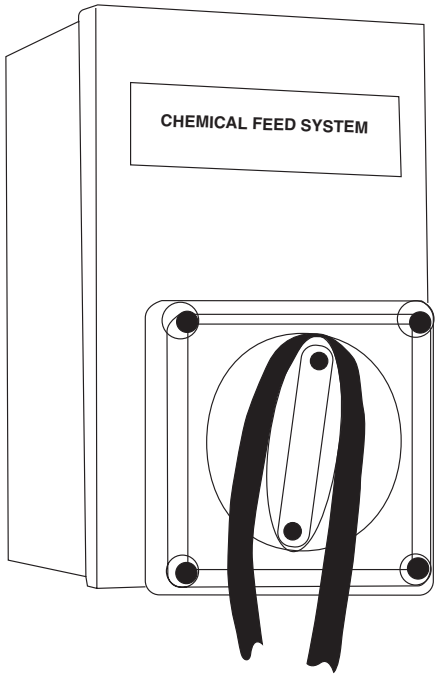
To ensure that the Washer is ready for processing without requiring a warm-up period, leave the Washer ON during regular periods of inactivity.

AUTOMATIC AGENT INJECTION SYSTEM

At the start of the Wash phase of a cycle, the Chemical Dispenser automatically pumps liquid detergent into the hot water supply held in the wash sump. The Dispenser operates for the preset period of time it takes to deliver the correct amount of detergent, after which it shuts off automatically.

Dispenser priming and timing is to be accomplished by an Authorized Service Technician utilizing the password restricted service screens.

Figure 3–1. LIQUID SUPPLY DISPENSER



Pump ON/OFF Indicator (Not Shown) — Red light that energizes when the pump is energized (automatically or manually).

Pump — Draws liquid from the supply source and feeds it to the wash sump.

Inlet Tubing — Carries liquid from the supply source to the pump.

Outlet Tubing — Carries liquid from the pump to the wash sump.

Checks Prior To Routine Operation

Check that:

1. A sufficient supply of liquid is available for a Dispenser before operating the Washer.
2. The end of a Dispenser's Inlet Tubing is properly inserted into the correct liquid supply container.

END OF DAILY OPERATION

Make sure that the unit is cool before performing any daily maintenance procedures.

TO HALT THE PHASE TIMING DURING A CYCLE

Pressing CYCLE HOLD on the Control Panel causes the phase timer to stop for five (5) minutes. Pressing the CYCLE HOLD a second time will allow the cycle to continue.

EMERGENCY STOP

- *BURN HAZARD: Do not open a Washer door for at least five seconds after stopping a processing cycle that was running a hot wash or rinse water phase. This allows time for the spray manifolds to stop functioning; otherwise hot water could spray out of the door opening, resulting in burns to personnel.*

- *RISK OF FALLING: Do not enter a Washer chamber immediately after stopping a processing cycle that had been running a Dry phase. Allow sufficient time for all metal surfaces within the chamber to cool. Otherwise hot surfaces may contact and cause burns to personnel.*

Using the EMERGENCY STOP Switch

An EMERGENCY STOP switch is provided at the Load Door and Unload Door to immediately terminate all processing functions and activate all visual and audible alarms. The EMERGENCY STOP Switch is a push/pull type of switch.

Pulling The Safety Cables to Stop the Wash Cycle

Safety Cables are provided inside the full length of the chamber to immediately terminate all processing functions by means of a mechanical safety switch and activates all visual and audible alarms. The Safety Cables are red in color.

Once an alarm is activated, visual and audible alarms are provided at the Load and Unload End of the washer. Once an emergency has occurred, all alarms must be acknowledged, the controls must be reset and the start button must be re-activated to resume normal operation.

On Power Door models, all doors are automatically opened upon the occurrence of the Safety Cable being pulled.

On Manual Door models, pulling the Safety Cable does not open the door but it activates all visual and audible alarms. Manual doors must be opened manually.

Pressing ABORT

PRESS "ABORT" LOCATED IN THE LOWER LEFT CORNER OF THE PROCESSING CYCLE SCREEN.

- The washer ceases operation.
- The initial Control Screen is displayed.

If desired, pressing START begins a new wash cycle.

Open any Manual Door to Stop the Wash Cycle

All manual doors may be opened from within the chamber. Opening of the door, after pressing the start button, immediately terminates all treatment functions and activates the visual and audible alarms.

CYCLE INTERRUPT CONDITIONS

Resettable Conditions

The following conditions cause the washer to stop the wash cycle, but not interrupt the wash cycle process:

- Door opens during a cycle.
- Wash 1 And 2 Temperature Time-out
- Rinse 1, 2, And 3 Temperature Time-out
- Dryer Temperature Time-out
- Wash 1 Fill Time-out
- Wash 2 Fill Time-out
- Rinse 1 Fill Time-out
- Rinse 2 Fill Time-out
- Rinse 3 Fill Time-out

If one of the above “Resettable” alarm conditions occur:

- Press ALARM ACK and START on the Control Panel to continue the wash cycle.

If the condition persists and the CYCLE ABORTED Panel reappears, the user should:

- Notify an Authorized Service Technician.

Non-Resettable Conditions

The following condition causes the washer to stop the wash cycle and interrupt the wash cycle process:

- Pressing ABORT on the Control Panel

If this “Non-Resettable” alarm condition occurs: The initial Control Screen appears. Start a new wash cycle.

The following conditions causes the washer to stop the wash cycle and interrupt the wash cycle process:

- Pulling the Safety Cables.
- Load End or Unload End EMERGENCY STOP Switch is pushed

If this “Non-Resettable” alarm condition occurs: The initial Control Screen appears. Start a new wash cycle. Turn the power off/on to reset the washer. Start a new wash cycle.

Shutting Down the Washer

In an emergency, it may be necessary to remove electrical power supplied to the washer or to turn off the steam and water supplies. All users should know the location of the main circuit breaker to disconnect the main electrical power and the steam and water supply shutoff valves at the washer site.

*The Electrical Disconnect Switch de-energizes the washer. The switch disconnects the 3 phase power to the controls of the washer **but does not** remove all electrical power from the control box.*

Section 4 Maintenance

GENERAL MAINTENANCE SCHEDULE

PERFORMANCE ASSURANCE PLAN

Preventive maintenance performed by factory-trained service representatives, using authorized parts and service techniques, is recommended. Recognizing symptoms of potential trouble and making corrections immediately is less costly and time consuming than repairing damaged equipment. Our Performance Assurance Plan offers scientific maintenance, not merely repair service.

For quality service on this equipment and information on our Performance Assurance Plan, contact Getinge/Castle, Inc. 1777 East Henrietta Road, Rochester, NY 14623-3133 or call 1-800-950-9912.

A Service Manual and a Parts Catalog for this unit may be purchased from Getinge/Castle, Inc.

The customer is responsible for the following maintenance items at the intervals specified. Optional items may require additional maintenance. See your Customer Manual for this information.

Table 4–1. Maintenance Schedule—Standard

MAINTENANCE ITEM	INTERVAL	SEE PAGE
• LOADING THE PRINTER PAPER (option)	WHEN REQUIRED	4-2
• TEST SAFETY SYSTEM • DRAIN AIR/WATER SEPARATOR • CLEANING THE PRIMARY DEBRIS FILTER	DAILY	4-2 4-2 4-3
• INSPECT AUTOMATIC SELF-CLEANING DEBRIS FILTER SCREEN AND SUMP • INSPECT TEMPERATURE AND WATER LEVEL PROBES FOR DEBRIS AND DAMAGE • CLEAN SPRAY JETS AND HEADERS • GREASE HEADER SLIDE • FILLING THE PNEUMATIC LUBRICATOR • HOSES • MAINTAIN CABINET	WEEKLY	4-3 4-4 4-5 4-5 4-5 4-6 4-6
• VERIFY AND ADJUST THE HEADER CABLE TENSION	EVERY THREE MONTHS	4-6
• LUBRICATE THE PUMP MOTOR • CHECK THE GFI SENSOR	EVERY SIX MONTHS	4-6 4-6

ROUTINE MAINTENANCE SCHEDULE—STANDARD

When required

LOADING THE PRINTER PAPER

See “LOADING THE PRINTER PAPER”, see page 7-4.

Daily

TEST SAFETY SYSTEM

NOTE

Insure that two (2) or more individuals are always present for this test.

Test the Personnel Safety System by activating the following:

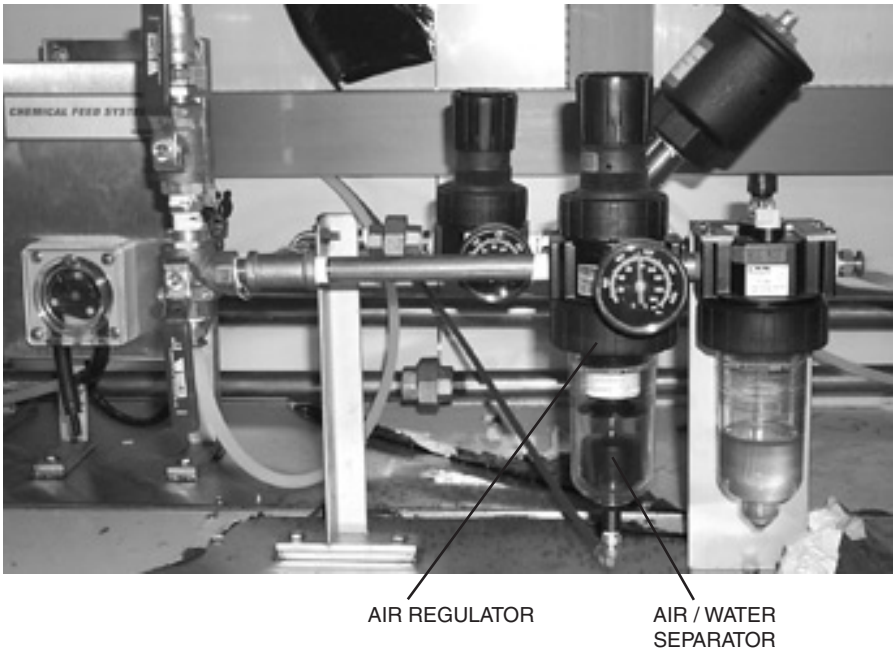
1. Pull the Safety Cable, and
2. Open the door(s).

DRAIN AIR/WATER SEPARATOR

NOTE

The air supply separator is located on top of the washer.

Figure 4–1. AIR/WATER SEPARATOR



1. Turn the air pump off and bleed the air pressure from the line.
2. Open the drain or bottle of separator regulator assembly.

3. Turn the air pump on slowly to blow any water or debris out of the bowl.
4. Turn the air pump off and close the drain.
5. Turn the air pump on.

CLEANING THE PRIMARY DEBRIS FILTER

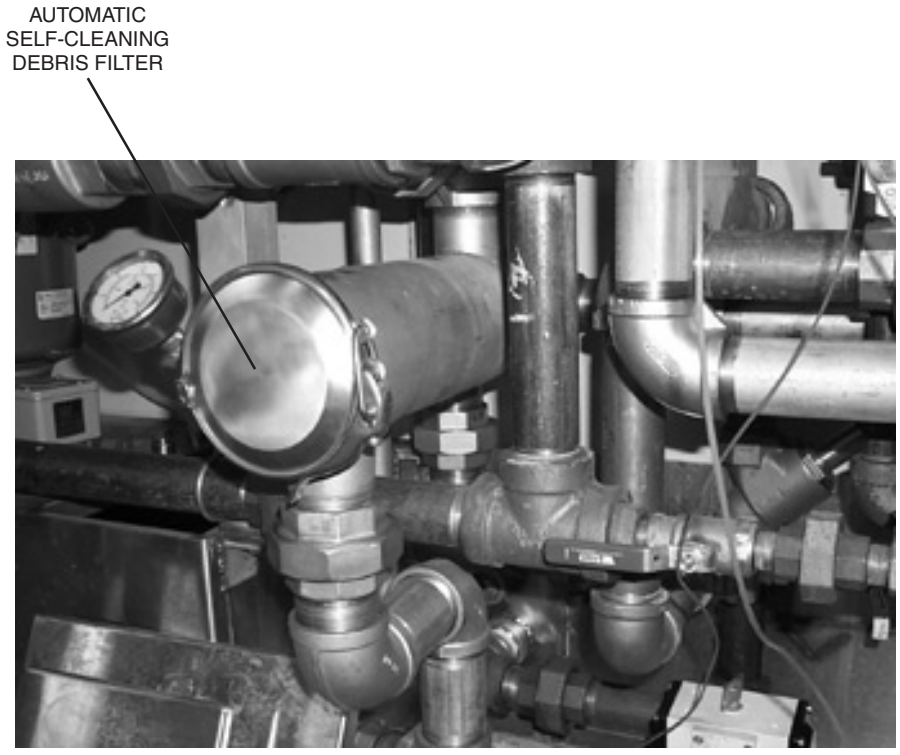
1. Remove the Primary Debris Filter.
2. Clean the debris from the filter with water.
3. Replace the Primary Debris Filter.

Weekly

INSPECT AUTOMATIC SELF-CLEANING DEBRIS FILTER SCREEN AND SUMP

The automatic self-cleaning debris filter screen should be rinsed clean weekly, removing any debris.

Figure 4–2. AUTOMATIC SELF-CLEANING DEBRIS FILTER



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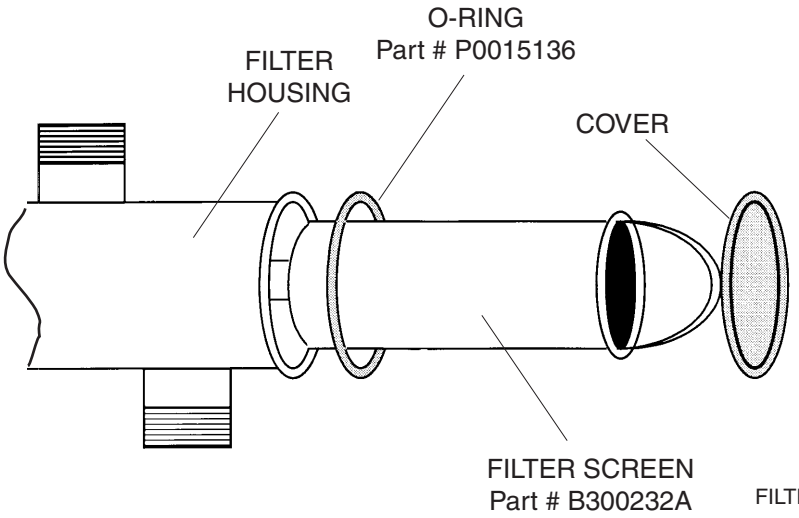
SHOCK HAZARD: Prior to any service or maintenance on the washer, all utilities should be disconnected and the lockout/tagout procedures should be followed to insure safety and prevent accidental shock.

1. De-energize the washer.
2. Remove the retainer clamp on the filter cover.
3. Remove the cover, o-ring, and filter screen.
4. Rinse any debris out of the filter screen and o-ring.
5. Carefully place the filter screen back into the filter housing.
6. Place the o-ring and cover onto the assembly and secure the retainer.

Figure 4–3. FILTER ASSEMBLY



INSPECT TEMPERATURE AND WATER LEVEL PROBES FOR DEBRIS AND DAMAGE

1. In the manual mode, activate the “GRAVITY DRAIN”.

SHOCK HAZARD: Prior to any service or maintenance on the washer, all utilities should be disconnected and the lockout/tagout procedures should be followed to insure safety and prevent accidental shock.

2. De-energize the washer.
3. Remove the sump cover.
4. Gently wipe off any debris around the temperature and water level probes with a cloth.
5. Replace the sump cover.

CLEAN SPRAY JETS AND HEADERS

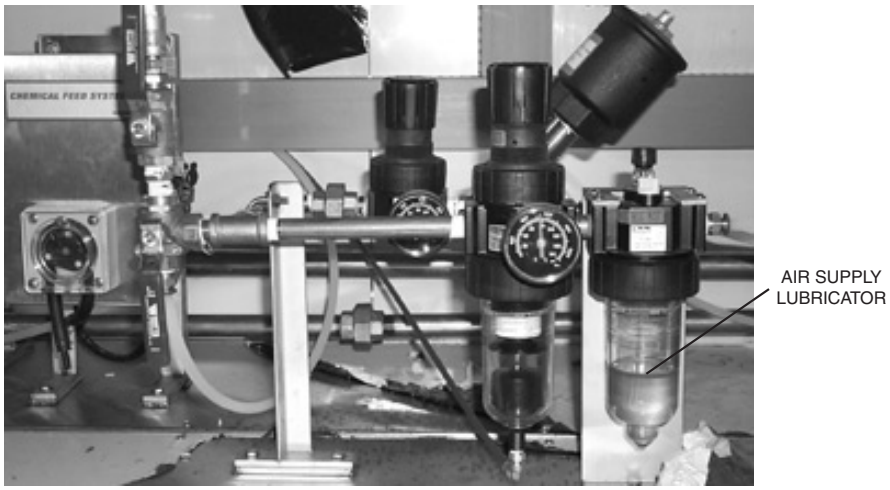
1. Inspect the jets for debris.
2. Push the debris through the jet and into the header with a small wire.
3. Remove the flush plugs from the bottom of the spray headers.
4. In manual mode, fill the sump with water and energize the pump for 30 seconds.
5. Replace the flush plugs.
6. Activate the “GRAVITY DRAIN” and allow the water to drain.

GREASE HEADER SLIDE

1. Wipe off the grease fitting and the header slide.
2. Place the grease gun onto the fitting and apply Lithium #2 grease, or equivalent, until a small amount comes out of the header slide.

FILLING THE PNEUMATIC LUBRICATOR

Figure 4–4. AIR SUPPLY LUBRICATOR



1. De-energize the air pump and bleed the air pressure out of the air line.
2. Remove the cap.
3. Fill oiler and replace the cap.
4. Energize the air pump.

HOSES

1. Check for loose clamps.
2. Check the condition of the hose.

MAINTAIN CABINET

To maintain the cabinet luster, wipe the cabinet with a non-abrasive stainless steel cleaner. See “Consumable Stock” on page 7.

Every Three Months

VERIFY AND ADJUST THE HEADER CABLE TENSION

1. Inspect the header cable tension by visually and physically looking for slack in the cable.

The eye bolts, connecting the header cable to the oscillating header system, are located outside of the washer chamber at the top of the service side.

2. Adjust the eye bolts for the appropriate tension, tight enough to remove the slack.

Every Six Months

LUBRICATE THE PUMP MOTOR

Lubricate the sleeve with grease every six (6) to twelve (12) months, as indicated on the motor.

CHECK THE GFI SENSOR

ELECTRIC SHOCK HAZARD: Only an electrician should perform this test!

1. Energize the washer.
2. Press the test button on the Ground Fault Interrupt (GFI), located on the back panel.
3. The power to screen should go off.
4. Press reset on the Ground Fault Interrupt (GFI).
5. Power to screen should come back on.

If this test fails to occur, contact your Authorized Service Technician.

RECOMMENDED SPARE PARTS LIST

Consumable Stock

Table 4–2. Consumable Stock

DESCRIPTION	PART NO.
Printer Paper - 3.25" W x 3" Diameter, Single Ply	P0020680
Printer Ribbon	P0020681
Lustre Stainless Steel Cleaner/Polish (18 oz.)	61301600026
Backup Battery (2/3 AMP, 3V, Lithium)	P0020693

Recommended Spare Parts

See the Customer Manual for a list of recommended spare parts. Electrical and piping schematics are also in the Customer Manual.

Recommended spare parts are listed in Table 4–3. Manufacturer and part number may be found in the replacement parts list.

Table 4–3. Recommended Spare Parts

PART NO.	DESCRIPTION
P0013041	POWER DOOR BELT
P0011142	DISC INSERT, ANGLE BODY PISTON VALVE
P0011143	DISC INSERT, ANGLE BODY PISTON VALVE
P0011144	DICS INSERT, ANGLE BODY PISTON VALVE
P0001500	PNEUMATIC BALL VALVE
P0001501	PNEUMATIC BALL VALVE
P0010035	STAINLESS STEEL PUMP
P0011208	PRESSURE/VACUUM RELIEF VALVE
P0011266	VACUUM BREAKER
R0011400	8 FT. HOSE
R0011418	8 FT. HOSE, ACID-CHEMICAL
P0011433	60 FT. WIRE CABLE

Table 4–3. Recommended Spare Parts

PART NO.	DESCRIPTION
P0011435	WIRE ROPE THIMBLE
P0011437	U-BOLT WIRE ROPE CLIP
P001438	COMPRESSION OVAL SLEEVE
P0011445	BIMETAL THERMOMETER
P0011446	PRESSURE GAUGE
P0011447	STANDARD PATTERN TIMBLE
P0011452	PRESSURE GAUGE
P0011466	WIRE ROPE
P015136	SANITARY GASKET BUNA
P0016029	GAUGE
P0016037	TUBING
P0016038	TUBING
P0016064	VALVE
P0016105	90 DEGREE HOSE CONNECTORS SWIVEL
P0017079	AIR CYLINDER
P0017082	AIR CYLINDER
P0020003	BULB
P0020091	FLUORESCENT LAMP
P0020404	GEMS LEVEL SWITCH
P0020501	TEMPERATURE PROBE
R0042001	16 FT. WINDOW GASKET
A401028A	WINDOW (8 X 16)
P0020202	SAFETY INTERLOCK SWITCH
P0010005	STAINLESS STEEL PUMP
P0010036	STAINLESS STEEL PUMP

Section 5 Troubleshooting

TROUBLE ANALYSIS

Table 5–1. Trouble Analysis

PROBLEM	PROBABLE CAUSE	CORRECTION
No power or screen is blank.	1. Buildings electrical supply disconnect switch (circuit breaker) is off. 2. Primary fuses on transformer blown-replace fuses. 3. Secondary fuse on transformer is blown. 4. Control board failed. 5. Ground Fault Interrupt (GFI) is tripped. 6. 24vdc power supply failed.	1. Set the switch to the on position. 2. Replace fuses. 3. Replace fuse. 4. Replace the control board. 5. Check GFI. 6. Replace power supply.
Washer is constantly draining.	1. Drain valve is worn. 2. Control signal off.	1. Rebuild or replace drain valve as necessary. 2. Use meter to check signal.
Washer leaks water into cabinet when it drains water.	House water fill valves faulty.	Check house water fill valves If valves work, but continue to leak, replace valve seals. If valves do not work, replace valves.
Processor does not read door open or sound alarm.	Door switch is damaged.	Replace the door switch.
Pump pressure is higher than normal (30-40psi).	1. Spray jets plugged. 2. Self-cleaning debris filter screen plugged with debris.	1. Flush out jets. See “” on page 4–4. 2. Clean filter screen.

PROBLEM	PROBABLE CAUSE	CORRECTION
Pump pressure is lower than normal (30-40psi).	1. Spray jets missing.	1. Replace spray jets as necessary.
	2. Header plugs are not in place.	2. Replace as necessary.
	3. Pump seals are worn (check for water under pump).	3. Replace as necessary.
	4. Self-cleaning debris filter screen may be plugged.	4. See “INSPECT AUTOMATIC SELF-CLEANING DEBRIS FILTER SCREEN AND SUMP” on page 4–3.
	5. Pump connection to tank leaking, allowing air into pump.	5. Replace hose or tighten clamps.
	6. Functions faulty.	6. Enter manual mode and perform functions tests.
	7. Header plugs (1") are not in place.	7. Replace as necessary.
Water is leaking from washer	1. Door(s) not fully closed and secured in place.	1. Fully close and secure the door(s).
	2. Window gasket damaged.	2. Replace the window gasket.
	3. Piping is leaking.	3. Check piping and valves. Tighten or replace as necessary.
	4. Duct work leaking, water running down side of washer.	4. Repair the duct work.
Unable to select cycle.	1. Damaged Control Panel.	1. Replace the Control Panel.
	2. Communication cable between TCP and Processor may be disconnected.	2. Re-attach the communication cable.
	3. Damaged door switch.	3. Replace the door switch as necessary.
	4. EMERGENCY STOP Switch activated.	4. Reset the EMERGENCY STOP Switch. Cycle power off/on to reset.
Cycles do not begin when the start button is depressed.	1. Safety Cables are loose.	1. Adjust/Tighten Safety Cables.
	2. Load or Unload Door is open.	2. Close the Load or Unload Door.
	3. Cycle parameters not set properly.	3. Check program settings.

PROBLEM	PROBABLE CAUSE	CORRECTION
Reuse tank boiling or cold.	1. Tank thermocouple faulty. 2. Steam valve sticking open or closed. 3. Steam supply is off.	1. Check tank thermocouple for accuracy. 2. Verify steam valve is not sticking open or closed. 3. Check to see if steam supply is on.
Washer remains in “Tank X Dump” mode.	1. Tank is empty. 2. Fill level probes are dirty. 3. In-tank float is dirty. 4. Washer was started with the tank partially full.	1. Verify tank has water in it. 2. Check fill level probes in sump. Clean as necessary. 3. Check in-tank float. Clean or replace as necessary. 4. Abort the cycle. Allow the side tank to fill completely and start a new cycle.
Washer under/over fills or runs without water in it.	Fill probes are dirty.	Check the fill probes. Clean as necessary.
Unit calls for water or low water level is displayed frequently.	1. Drain valve is open. 2. Back flush valve is jammed open.	1. Close drain valve. 2. Notify Authorized Service Technician.

SCREENS ACTIVATED BY ALARMS

TAKING TOO LONG TO FILL

If this alarm appears on the screen: The sump has taken too long to fill.
1. Press "ALARM ANSWER."
2. Check house water pressure (must be at 35 Psi minimum).
3. Check supply valve (valve must be fully open).
4. Check air pressure (air pressure must be 80 Psi minimum).

TEMPERATURE GUARANTEE NOT OBTAINED

If this alarm appears on the screen: The sump has taken too long to heat.
1. Press "ANSWER ALARM."
2. Check house steam pressure (must be 30 Psi minimum unless ordered with low pressure option 10 Psi minimum).
3. Check condensate valve (must be fully open).
4. Check supply valve (must be fully open).
5. Check air pressure (air pressure must be 80 Psi minimum).
6. Check exhaust damper (must go to closed position when treatment pump is running).

T/C #1 OPEN LEAD

If this alarm appears on the screen: The thermo-couple wire is broken or disconnected.
1. Trace out the thermo-couple wire (Type K) from the control panel to the sump temperature probe.
2. Repair or replace as needed.

T/C #2 OPEN LEAD

If this alarm appears on the screen: The thermo-couple wire is broken or disconnected.
1. Trace out the thermo-couple wire (Type K) from the control panel to the sump fill temperature probe.
2. Repair or replace as needed.

T/C #3 OPEN LEAD

If this alarm appears on the screen: The thermo-couple wire is broken or disconnected.
1. Trace out the thermo-couple wire (Type K) from the control panel to the Alkaline tank temperature probe.
2. Repair or replace as needed.

T/C #4 OPEN LEAD

If this alarm appears on the screen: The thermo-couple wire is broken or disconnected.
1. Trace out the thermo-couple wire (Type K) from the control panel to the Acid tank temperature probe.
2. Repair or replace as needed.

CYCLE ABORTED

If this alarm appears on the screen: The "CYCLE ABORT" button has been pressed.
1. Press "ANSWER ALARM" (cycle will have to be started from the beginning).

EMERGENCY CABLE FAULT

If this alarm appears on the screen: The safety cables on the interior of the washer are out of adjustment and need to be replaced.
1. Tighten cables until input I-1-A2 comes back on.

EMERGENCY CABLE SYSTEM ACTIVATED

If this alarm appears on the screen: The safety cables on the interior of the washer have been pulled.
1. Turn power to washer OFF.
2. Press the Safety cable reset located at unload end and behind control panel (two places).
3. Turn main power back ON.

LOAD END E-STOP ACTIVATED

If this alarm appears on the screen: The Load End "EMERGENCY STOP" Switch has been pushed.
1. Turn off main power.
2. Pull button out.
3. Turn main power back on.

UNLOAD END E-STOP ACTIVATED

If this alarm appears on the screen: The Unload End "EMERGENCY STOP" Switch has been pushed.
1. Turn off main power.
2. Pull button out.
3. Turn main power back on.

PLC BATTERY LOW

If this alarm appears on the screen: The battery in the power supply module is losing power.
1. Replace battery.

Section 6 Installation Instructions

INTRODUCTION

This section is for convenient customer reference. It summarizes information used for installing the washer.

Official agreements, pertinent drawings, and related documents are provided separately to the customer by authorized personnel.

UNCRATING & EQUIPMENT INSPECTION

Before signing the Bill of Lading and accepting the equipment, inspect the outside of the crates for any visible damage. If any damage has occurred, note it on the Bill of Lading.

After accepting the equipment, if any visible damage is apparent notify the carrier's insurance and process a claim. At this point it is good practice to take pictures of the crate to back up the claim if internal damage has occurred.

Move the crate(s) to the general area where the washer will be set in place. Uncrate the outside of the washer and inspect the contents. If damage is apparent, take pictures of the areas.

Upon completion of the inspection process, place the washer in the spot where the equipment will be connected to the facility's services. Using the room layout print, place the base of the equipment as noted on the print. Make sure that the location of the equipment has at least a 30" clearance around the Control Panel for general maintenance.

Installation should be performed by Authorized Service Technicians only.

INSTALLATION/ASSEMBLY CHECKLIST

Once your washer has been inspected for damage and properly uncrated, you are now ready to install the equipment. Installation should be performed by Authorized Service Technicians only. The following should be performed before notifying your installation contractor to insure the smooth installation of your equipment.

Equipment Location

- ❑ Crates are in the room.
- ❑ Clear access is available for installation personnel.
- ❑ Lighting and 30 Amp/110 Volt AC power is present within 25 feet of the installation area.
- ❑ Heating and Air Conditioning is available in the installation area.
- ❑ A Pass-Through or Wall opening is correct to supplied room layout and equipment drawings (if applicable).
- ❑ On floor mounted units, the floor has been coated/painted under the unit, if applicable.

Utilities

Check to insure that the following utility requirements are as follows:

- ❑ Facility steam connection, maximum dynamic pressure, and flow rate is as specified on the certified specification and equipment drawings.
- ❑ We recommend the steam supply line have a drip leg and steam trap to prevent debris and excess condensation from entering the equipment steam supply.
- ❑ Hot Tap Water supply connection, dynamic pressure, flow rate, and temperature, should meet or exceed the minimum requirement or as specified on the equipment drawings.
- ❑ Any special application water is supplied at specified pressure as on the equipment drawings, if applicable.
- ❑ A Condensation connection is as specified on the equipment drawings.
- ❑ Vent connections and flow rates are available as specified on the equipment drawings.

Electrical

- ❑ Verify the electrical supply voltage is as specified on the equipment drawings and as noted on the nameplate on the washer.
- ❑ Insure the equipment is provided with a fused disconnect switch located within 10-15 feet from the Control Panel.

START-UP

To ensure proper start-up, follow these steps:

LED Control Panel

1. Ensure that all utilities are properly connected to their respective washer connections and tightened.
2. Verify the electrical supply voltage is as specified on the equipment drawings and as noted on the nameplate on the equipment.
3. Verify steam supply meets the requirements as noted on the equipment drawings.
4. To energize the washer, rotate the Electrical Disconnect Switch, located on the Control Panel, to the ON position.

TCP Control Panel

1. Ensure that all utilities are properly connected to their respective connections and tightened.
2. Verify the electrical supply voltage is as specified on the equipment drawings and as noted on the nameplate on the equipment.
3. Verify steam supply meets the requirements as noted on the equipment drawings.
4. To energize the washer, rotate the Electrical Disconnect Switch, located on the Control Panel, to the ON position.
5. The Touch Control Panel (TCP) immediately lights and perform a self-diagnostic test. Once complete, the system Stand-by Screen is displayed. The is now ready for operation.

Electro-Mechanical Unit

1. Ensure that all utilities are properly connected to their respective connections and tightened.
2. Verify the electrical supply voltage is as specified on the equipment drawings and as noted on the nameplate on the equipment.
3. Verify steam supply meets the requirements as noted on the equipment drawings.
4. To energize the washer, rotate the Electrical Disconnect Switch, located on the Control Panel, to the ON position.

CHECK-OUT

Authorized Service Technicians will have the Installation Checkout Sheet, Form-21, for the 2100 Series Cage, Rack, and Utensil Washer. The Service Technician will verify the Washer for correct operation before leaving the installation site.

TECHNICAL DATA

SERVICE REQUIREMENTS

Utilities and services are furnished by others in accordance with the official drawings for your unit. The utilities are to be supplied with manual shut off valves, electrical services are to be supplied with fused disconnect switches, and all exhaust ducts are to be supplied with manual dampers. For utility requirements, refer to the certified specification document.

Section 7 Options

INTRODUCTION

The 2100 Series offers numerous options to meet each customer's specific needs. This chapter lists the most commonly selected options. Your washer may not have all of the options listed, and could have other specific options. For the options selected with your washer, please see your Customer Manual.

MOST COMMON OPTIONS

Right or Left Handed (Sump)

The unit is constructed with the sump on either the left or right side of the unit, relative to the Load Door.

Manual Door or Powered Door

All doors are of double wall construction with rigid foam insulation. Tempered glass, watertight observation windows are provided in both Load and Unload Doors. All powered doors are immediately opened upon activation of either the EMERGENCY STOP Switch or Safety Cable. All doors may be manually opened from within the chamber.

MANUAL DOOR

The unit contains manually operated, swing-out, side-hinged cabinet-type doors having pressure relief safety latches.

POWERED DOOR

All doors are powered, telescoping, open and closed to permit ease in loading and unloading the chamber.

Single Door or Double Door (Pass-Through)

SINGLE DOOR

The unit is loaded and unloaded through the same door.

DOUBLE DOOR (PASS-THROUGH)

The unit is provided with an additional door for pass-through operation and is complete with an unload end Control Panel. The system includes door activation switches and status lights at all door locations which are electrically wired to the Programmable Logic Controller (PLC). All doors may be manually opened from within the chamber.

Door Interlock (Only Available on Double Door [Pass-Through])

DOUBLE DOOR INTERLOCKS FOR MANUAL DOORS

Both Load and Unload manual Doors are electro-mechanically interlocked so that only one door may be in an open position at a time to insure separation of clean and contaminated areas of the facility.

DOUBLE DOOR INTERLOCKS FOR POWERED DOORS

Both Load and Unload Doors are interlocked to permit only one door to be in an open position at a time to insure separation of the clean and soiled areas of the facility. The system includes door activation switches and status lights at all door locations which are electrically wired to the Programmable Logic Controller (PLC).

Automatic Floor Tilting System

The automatic floor tilting system pitches the cage/racks from front to back to aid in the draining properties of the cages/racks. The floor is positioned back to a level state at the end of the cycle. This allows for a level chamber floor when the washer is in a stand-by mode to enable an easier transfer of loads into and out of the unit.

NOTE

The total weight of a load placed on a powered floor should not exceed 700 lbs (318 kg).

Pan Washing

Additional outward spraying, oscillating spray jets and a wall mounted pan rack are provided to simultaneously wash debris pans, or can be supplied to process plastic cages on one side wall of the chamber. The option increases the overall washer width by 8 inches.

DESCRIPTION

Supplied in the chamber, located on the non-service side of the washer, is a stainless steel rack system capable of washing pans while processing racks. The user manually places the soiled pans in the rack and the machine washes and rinses them during the automatic cycle.

USER CONTROLS

None

MAINTENANCE REQUIRED

Spray nozzles located on the Rack side of the spray header may require periodic cleaning. Inspect and clean monthly.

NOTE

Do not remove nozzles from the spray header to clean. Push debris back into the header, remove the drain plugs located at the bottom of the header, and manually cycle the wash pump to flush out debris.

Controls

TOUCH CONTROL PANEL (TCP) AND LED CONTROL PANEL

A solid state microcomputer control system monitors and automatically controls all process operations and functions. Cycle phase time, temperatures, and other key process parameters are programmable and can be locked by supervision. The cycle menu of treatment processes can be programmed and retained to permit operating personnel to accommodate a wide variety of load and processing requirements. Cycle programming can be controlled by a supervisory access code to insure process integrity. Each cycle program can be reviewed and printed on demand.

NOTE

The optional Printer must be selected to have this feature.

Programming can be in standard AM/PM or military time, Fahrenheit or Centigrade temperature. Times and temperatures are expressed in minutes/seconds and tenth of a degree increments respectively. An internal battery backs up all cycle memory and permits completion of a cycle upon restoration of power after a power disruption.

A highly visible two line TCP or LED display screen displays cycle program data on demand and real time in process cycle performance. All cycle

deviations are alarmed both visually and audibly, recorded and must be acknowledged by the user.

Printer

An integral printer, with paper take-up, is provided to record all cycle program and in-process performance data. Each cycle program, including time and temperature setpoints, may be printed on demand. In-process cycle data is automatically printed to provide a chronological time/ temperature profile of actual cycle performance.

DESCRIPTION

A printer, with paper take-up, records all cycle programs and in process performance data. Each cycle program, including time and temperature setpoints, may be printed on demand.

USER CONTROLS

Figure 7–1. CONTROL PANEL TOUCH CELL - “PRINT CYCLE”

When the above touch cell is pressed, the current program is printed out. See Figure 7–1.

Figure 7–2. CONTROL PANEL TOUCH CELL - “EVENT PRINT ON”

When activated (LED on or Green Color), cycle statistic will be printed automatically during the cycle. See Figure 7–2.

MAINTENANCE REQUIRED

Spent Ink cartridges should be replaced with new cartridges as needed (see attached instructions on cartridge loading). Periodic changing of the paper roll will be required as needed. See the following instructions for loading single-ply paper.

LOADING THE PRINTER PAPER

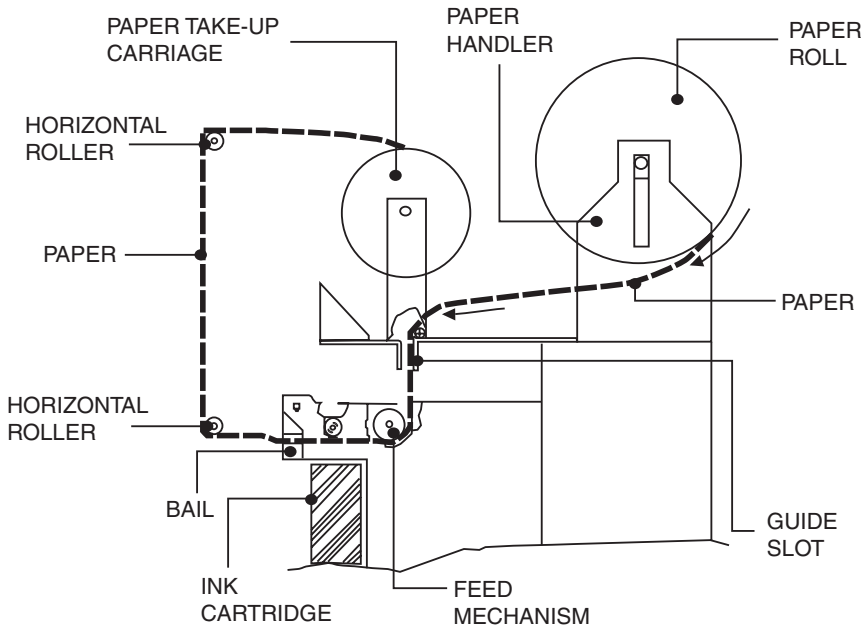
1. Turn off power to the washer.
2. Place the Paper Roll in the Paper Handler.

NOTE ▶

The Paper Roll must have a Rolling Pin at its center.

3. Carefully direct the single-ply paper, from the Paper Roll, down into the Guide Slot until the paper stops against the Feed Mechanism. See Figure 7–3.

Figure 7–3. LOADING THE PRINTER PAPER



4. The paper is now ready to be advanced automatically through the rest of the system. To do this, turn the power on.
5. Guide the paper through the Bail slot up and around the two horizontal Rollers and attach the leading edge to the clip on the Paper Take-up Carriage.
6. Advance the Paper Take-up Carriage by hand until the paper is taut.
7. The paper is now loaded.

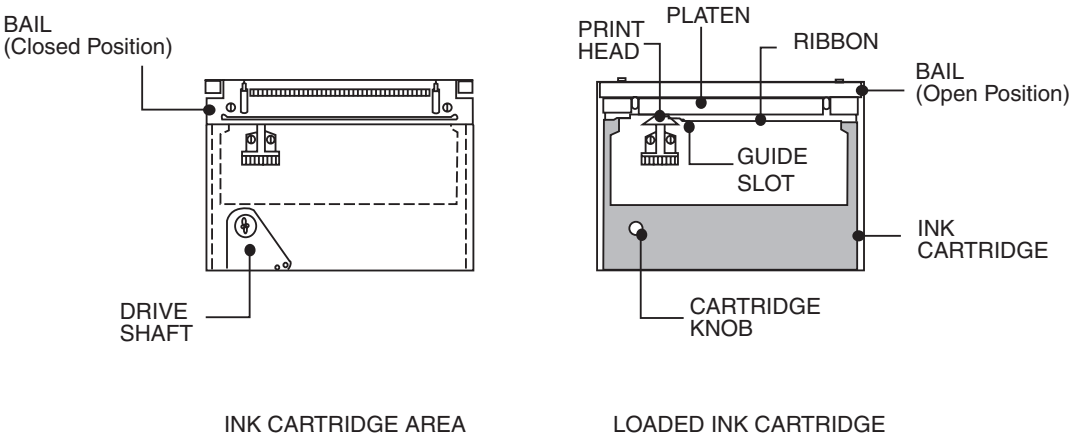
CHANGING THE INK CARTRIDGE

1. Turn power off. If there is a used Ink Cartridge already loaded, remove it by opening the Bail and pulling the Ink Cartridge directly over the Drive Shaft.
2. Before inserting the new Ink Cartridge, turn the Cartridge Knob counterclockwise until Ribbon is taut.
3. Open the Bail. Carefully mount the Ink Cartridge onto the Drive Shaft, keeping the Ribbon between the Platen and the Printhead.

NOTE ▶

During proper installation, you should hear the Ink Cartridge snap into place. See Figure 7–4.

Figure 7–4. LOADING THE INK CARTRIDGE

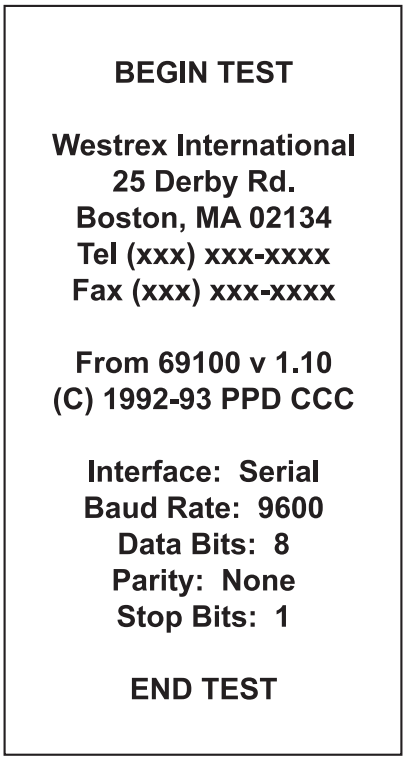


4. Thread the Ribbon through the Guide Slot and before closing the Bail, make sure the Ribbon is still taut by turning the Cartridge Knob.
5. Close the Bail. The Ink Cartridge is now loaded.

OBTAINING A SELF-TEST PRINT-OUT

1. Check that the Ink Cartridge and paper have been properly loaded.
2. Turn power off.
3. Depress and hold the Feed Switch.
4. Turn power on, hold the Feed Switch until printer starts printing.
5. Release Feed Switch. The Self-test prints and looks similar to Figure 7–5.

Figure 7–5. EXAMPLE OF SELF-TEST PRINT-OUT



PRINTER INFORMATION

Printer

P0020663
Kiosk & Gaming Printer #4700 W/Ribbon
40 Column, 12 Character/Inch, 8 Line/Inch
Serial RS-232C, Interface, 9600 Baud Rate

Printer Paper - 3.25W x 3 inch Diameter Single Ply

P0020680

Printer Ribbon

P0020681

Alkaline Wash Tank

Provides the capability to automatically save and return the alkaline wash agent treatment solution to a separate heated storage reservoir, or to discard the solution to the sump after completion of the wash phase treatment. The storage reservoir drain piping may be programmed to automatically drain to the sump and then to waste and refill after a programmed number of cycles. The system consists of an insulated stainless steel storage reservoir, an automatically controlled stainless steel steam heating coil, an automatic water fill and level control, an overflow piping, and an automatic drain valve. Reservoir temperature is user programmable to 190°F.

DESCALING SYSTEM

The alkaline tank has an internal jet system that when activated, sprays fresh tap water on the interior of the tank, removing debris and build up. This system is programmable and operates in conjunction with the automatic tank drain system.

Sequence of Operation: The tank drains. Fresh cold tap water is sprayed, removing debris from interior of the tank. The tank refills and acid is added via customer supplied dispensers. The tank is heated and air agitated. The tank drains, and the interior jets wash the interior once again. The tank refills and is ready for operation.

Acid Tank

Provides the capability to automatically save and return the acid wash agent treatment solution to a separate heated storage reservoir or to discard the solution to the sump after completion of the wash phase treatment. The storage reservoir may be programmed to automatically drain to the sump and then to waste and refill after a programmed number of cycles. The system consists of an insulated stainless steel storage reservoir, an automatically controlled stainless steel steam heating coil, an automatic water fill and level control, and an overflow piping. Reservoir temperature is user programmable to 190°F.

NOTE ▶

Requires selection of the stainless steel treatment component option.

Heat Exchanger

HOUSE TAP WATER TEMPERATURE BOOSTER

An instantaneous steam to water heat exchanger is provided to raise the house tap water supply temperature by 80°F for:

- Filling, and
- Optional non-recirculated Rinse 3.

PURE WATER TEMPERATURE BOOSTER

A stainless steel instantaneous steam to water heat exchanger is provided to raise the pure water supply temperature by 80°F for:

- Filling, and
- Optional non-recirculated Rinse 3.

USER CONTROLS

None

MAINTENANCE REQUIRED

None

Floor Spray Headers

DESCRIPTION

A stationary spray header is mounted in the floor of the unit to ensure complete exposure of the under side of the load to the treatment solution.

USER CONTROLS

None

MAINTENANCE REQUIRED

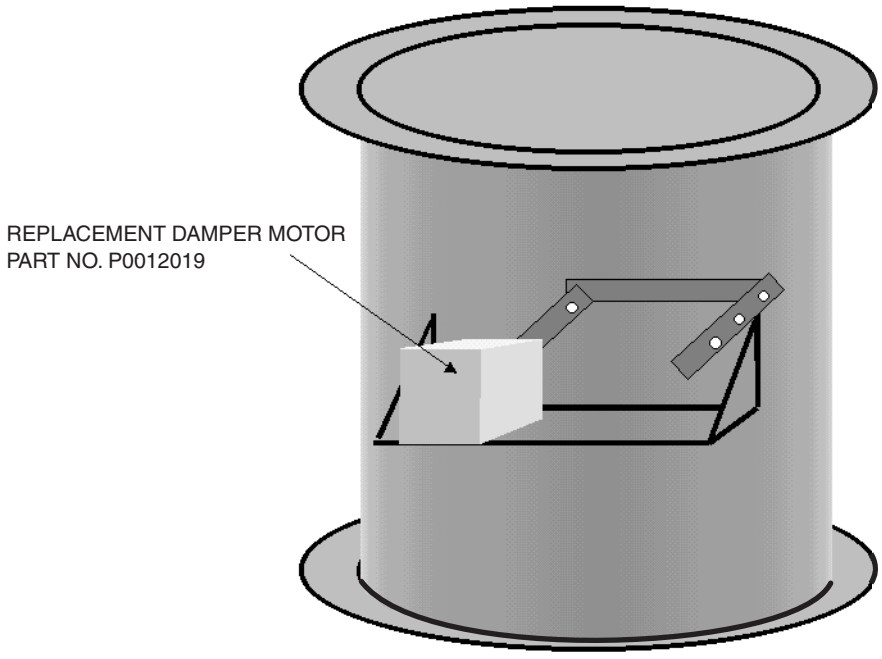
Clean jets as necessary by removing them from the piping and rinsing out any accumulated debris.

Automatic Damper

DESCRIPTION

An automatic motorized, stainless steel damper is provided in the exhaust vent, within the chamber, and electrically wired for automatic operation. The Damper will be in the ‘fully open’ position during the vapor removal phase and while the washer is in the stand-by mode, and ‘partially closed’ while the wash pump is in operation.

Figure 7–6. AUTOMATIC DAMPER



USER CONTROLS

None

MAINTENANCE REQUIRED

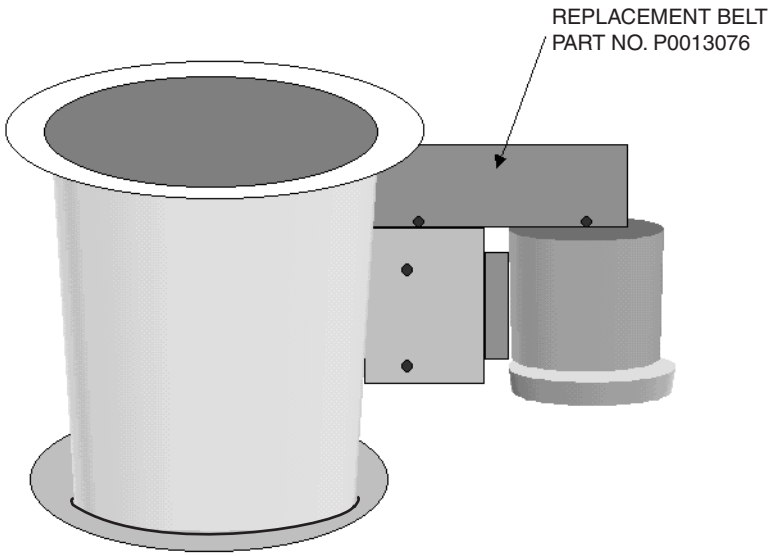
None

Exhaust Fan

DESCRIPTION

The washer is provided with a fan that is electrically wired to the Programmable Logic Controller (PLC) to exhaust residual vapor and hot moist air from the chamber. The fan is provided complete with 3 phase, 60 Hz motor, and magnetic starter. The fan assembly can be provided in either steel or stainless steel construction. The option increases the overall height of the unit.

Figure 7–7. EXHAUST FAN



USER CONTROLS

None

MAINTENANCE REQUIRED

The bearings on belt drive fans should be greased daily, one or two strokes of grease gun. Lubricate the motor bearings every six months and avoid the use of a pneumatic pressure greasing system, which tends to fill the bearing chamber completely.

MATERIALS NEEDED

Lithium #2 grease

Drain Discharge Cool-Down System

Monitored

The discharge of the washer is drained into a stainless steel holding tank. The system senses the discharge temperature with a probe and adds the required amount of cold water to lower the discharge temperature to below 140°F before discharging to the drain system within the facility.

DESCRIPTION

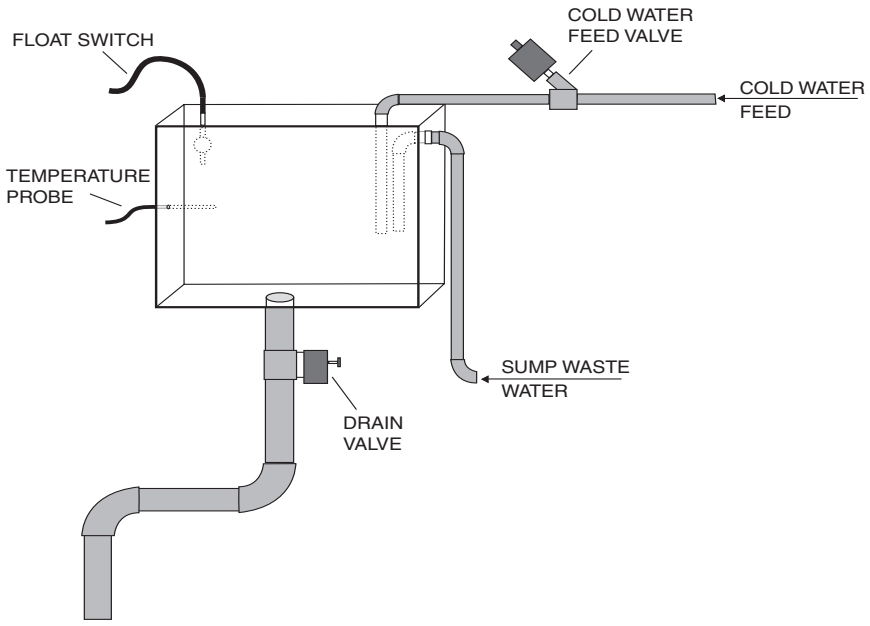
When waste water is pumped from the sump to the cool-down holding tank, the thermocouple, in the cool-down tank, will detect the temperature of the water. If the water is above 140°F, the drain valve, located at the bottom of the tank, will remain closed and cold water will be injected with the waste water to lower the temperature. Once the water temperature is less than 140°F, the drain valve will open allowing the tank to drain.

USER CONTROLS

A program must be set for local and national plumbing codes.

MAINTENANCE REQUIRED

Figure 7–8. DRAIN DISCHARGE COOL-DOWN SYSTEM - MONITORED



Check the following maintenance items at the correct time interval:

Maintenance Item:	Needs to be:	Interval:
Temperature Probe	Cleaned	Every Month
Cold Water Feed Valve	Inspected	Every Six (6) Months
Drain Valve	Inspected	Every Twelve (12) Months
Float Switch	Cleaned and Inspected	Every Twelve (12) Months

Non-monitored

DESCRIPTION

Cold tap water is automatically injected into the drain discharge lowering the discharge temperature before entering the building's drain system.

USER CONTROLS

None

MAINTENANCE REQUIRED

None

Bottle Washing

This is an option to accommodate Bottle Washing Carts. Carts lock into floor couplings so that there is no movement of the cart during the wash cycle.

Rack Flush

The system provides two (2) quick-disconnect hoses and pressure reducer to flush two automatic water type racks with fresh hot tap water during the Rinse 3 phase.

Treatment Solution pH Neutralization System

TREATMENT SOLUTION pH NEUTRALIZATION SYSTEM - NON-MONITORED

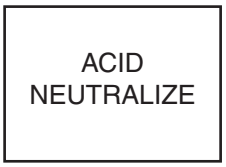
A non-monitored, time based, volumetric type injection system is provided to automatically meter user supplied neutralization agent into the sump or optional separate tank, to neutralize highly acidic or alkaline solutions to a neutral pH before discharge to drain to conform to plumbing code requirements.

DESCRIPTION

Time based neutralization of highly acidic or alkaline treatment solutions to a neutral pH before discharge to drain, conforming to plumbing code requirements.

USER CONTROLS

Figure 7–9. CONTROL PANEL - “ACID NEUTRALIZE” (READ ONLY)



In the manual mode, the Acid Neutralizer pump is activated for a preset period of time.

MAINTENANCE REQUIRED

None

TREATMENT SOLUTION pH NEUTRALIZATION SYSTEM - MONITORED

A monitored, proportional type system is provided to automatically inject user supplied neutralization agent into the sump to neutralize highly acidic or alkaline solutions to a neutral pH before discharge to drain to conform to plumbing code requirements. The treatment solution pH is sensed with a probe and a proportional amount of agent is injected to attain a neutral pH.

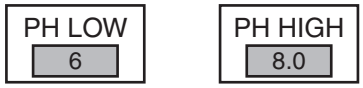
DESCRIPTION

A monitored, proportional type system to automatically inject user supplied neutralization agent into the sump to neutralize highly acidic or alkaline solutions to a selected pH before discharge to drain, to conform to plumbing code requirements. The treatment solution pH is sensed with a probe and neutralizing agent is injected to achieve a selected pH.

USER CONTROLS

The range for the discharge of solutions may be adjustable from 0.0 - 14.0 using the following controls: “pH High” which sets the upper limit for discharge to drain, and “pH Low” which sets the lower limit for discharge to drain.

Figure 7–10. CONTROL PANEL TOUCH CELL - PARAMETER SETTINGS



MAINTENANCE REQUIRED

Every six months calibrate pH transmitter and probe:

1. “pH CAL” adjustment is made with a buffer solution of 7 pH. Adjust the “CAL” potentiometer until the display reads 7.00.
2. “SLOPE” adjustment is made with a buffer solution of 4 pH. Adjust “SLOPE” for a reading of 4.00. Continue to adjust each potentiometer alternately using the specified buffer solution until no adjustment is required.

Service Enclosure

A stainless steel cabinet, with access doors, is provided to enclose the service and component side of the unit from the floor to the top of the unit.

Seismic Anchors

Hardware is available to meet seismic anchoring requirements where applicable.

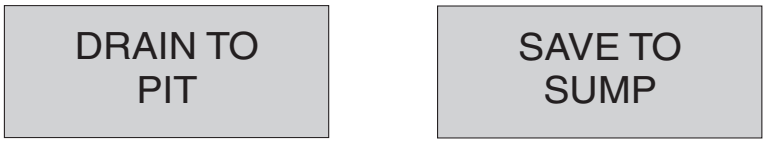
Final Rinse Water Saver System

DESCRIPTION

Provides the capability to automatically save the water from the Rinse 3 phase to the sump for the next wash cycle or to discard the water to the drain.

USER CONTROLS

Figure 7–11. CONTROL PANEL TOUCH CELL - WATER SAVER,RINSE 3



The user can select one of two options from the control panel: ‘DRAIN TO PIT’ or ‘SAVE TO SUMP’. The Rinse 3 phase time and temperature can be selected without changing the water saver system.

MAINTENANCE REQUIRED

None

Automatic Alkaline Agent Injection System - Monitored (RF001)

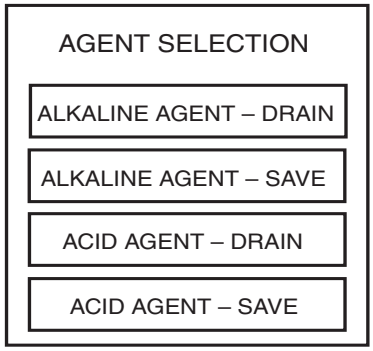
DESCRIPTION

A volumetric type injection system is provided to automatically inject user supplied liquid cleaning agent into the sump to attain the necessary agent concentration.

USER CONTROLS

The user must program what chemical to be used for the type of process

Figure 7–12. CONTROL PANEL TOUCH CELL - AGENT SELECTION



In the program mode the user can select the agent to be injected during the Wash 1 and Wash 2 phase. In the program mode, on the text controls, the user can press the ‘Toggle’ button to change from Alkaline agent to Acid agent.

Figure 7–13. CONTROL PANEL - ALKALINE DETERGENT(READ ONLY)

In the manual mode, pressing the ‘Alkaline Agent’ button causes the Alkaline agent pump to be activated for a preset period of time.

MAINTENANCE REQUIRED

Concentration must be tested on a monthly basis to insure that the proper amount of chemical is being injected into both the Wash 1 tank and Wash 2 tank or the sump.

Automatic Alkaline Agent Injection System - Time Based (RF003)

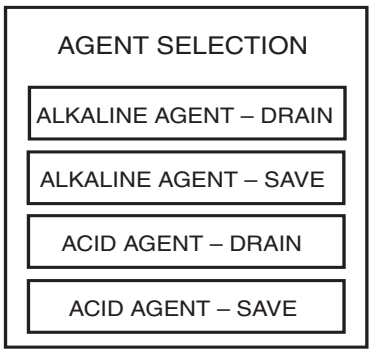
DESCRIPTION

A volumetric type injection system is provided to automatically inject a specific amount of user supplied liquid cleaning agent into the sump to attain the necessary agent concentration.

USER CONTROLS

The user must program what chemical is to be used for the type of process being used.

Figure 7–14. CONTROL PANEL TOUCH CELL - AGENT SELECTION



In the program mode the user can select the agent to be injected during the Wash 1 and Wash 2 phase. In the program mode, on the text controls, the user can press the ‘Toggle’ button to change from Alkaline agent to Acid agent.

Figure 7–15. CONTROL PANEL - ALKALINE DETERGENT(READ ONLY)

In the manual mode, pressing the ‘Alkaline Agent’ button causes the Alkaline agent pump to be activated for a preset period of time.

MAINTENANCE REQUIRED

Concentration must be tested on a monthly basis to insure that the proper amount of chemical is being injected into the sump.

Automatic Acid Agent Injection System - Monitored (RF007)

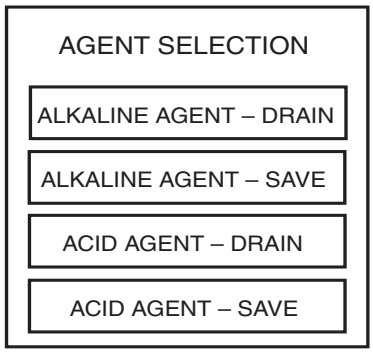
DESCRIPTION

A volumetric type injection system is provided to automatically inject user supplied liquid cleaning agent into the sump to attain the necessary agent concentration.

USER CONTROLS

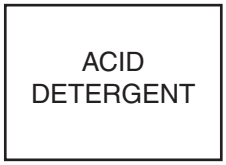
The user must program what chemical is to be used for the type of process being used.

Figure 7–16. CONTROL PANEL TOUCH CELL - AGENT SELECTION



In the program mode the use can select the agent to be injected during the Wash 1 and Wash 2 phase. In the program mode, on the text controls, the user can press the ‘Toggle’ button to change from Acid agent to Alkaline agent.

Figure 7–17. CONTROL PANEL - ACID DETERGENT(READ ONLY)



In the manual mode, pressing the ‘Acid Agent’ button causes the Acid agent pump to be activated for a preset period of time. In the program mode, on the text controls, the user can press the ‘Toggle’ button to cycle the ‘off’ to ‘on’ next to the appropriate pump.

MAINTENANCE REQUIRED

Concentration must be tested on a monthly basis to insure that the proper amount of chemical is being injected into both the Wash 1 tank and Wash 2 tank or the sump.

Automatic Acid Agent Injection System - Time Based (RF004)

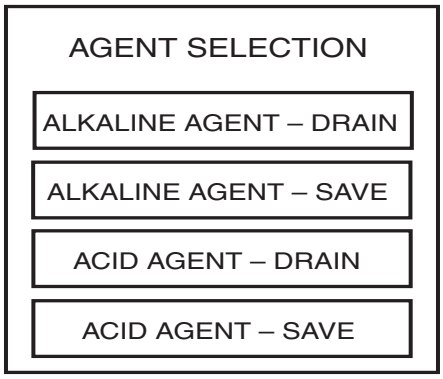
DESCRIPTION

A volumetric type injection system is provided to automatically inject a specific amount of user supplied liquid cleaning agent into the sump to attain the necessary agent concentration.

USER CONTROLS

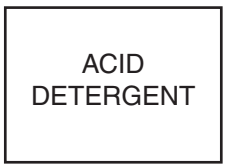
The user must program what chemical is to be used for the type of process being used.

Figure 7–18. CONTROL PANEL TOUCH CELL - AGENT SELECTION



In the program mode the use can select the agent to be injected during the Wash 1 and Wash 2 phase. In the program mode, on the text controls, the user can press the ‘Toggle’ button to change from Acid agent to Alkaline agent.

Figure 7–19. CONTROL PANEL - ACID DETERGENT(READ ONLY)



In the manual mode, pressing the ‘Acid Agent’ button causes the Acid agent pump to be activated for a preset period of time. In the program mode, on the text controls, the user can press the ‘Toggle’ button to cycle the ‘off’ to ‘on’ next to the appropriate pump.

MAINTENANCE REQUIRED

Concentration must be tested on a monthly basis to insure that the proper amount of chemical is being injected into the sump.

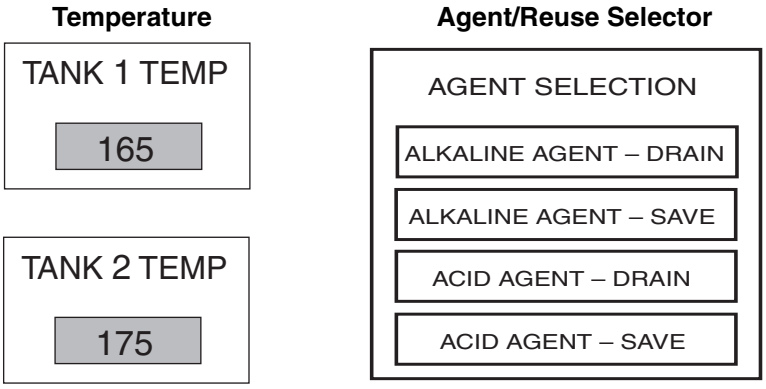
Alkaline Agent Wash Saver System

DESCRIPTION

Provides the capability to automatically save the alkaline or acid treatment solution to a separate heated storage reservoir or to discard the solution to drain after completion of the wash phase. The system consists of an insulated stainless steel storage reservoir, an automatically controlled stainless steel steam heating coil, an automatic water fill and level control, and overflow piping. Reservoir temperature is user programmable to 190°F.

USER CONTROLS

Figure 7–20. TANK STORAGE - TEMP. AND AGENT SELECTION



Programming the Wash Agent Saver

From the programming mode, the user can select the agent by pressing the touch cell or by toggling the agent selection from ‘Drain’ to ‘Save’ on text displays. Alkaline agent or acid agent, if applicable, can be specified as the treatment for the particular phase.

The temperature of each tank can be adjusted using the “TANK 1 TEMP”, for the alkaline agent, or “TANK 2 TEMP”, for the acid agent, touch cell or text display in the manual screens.

MAINTENANCE REQUIRED

The wash saver tank should be cleaned and flushed quarterly or as required to loosen debris, grime, and other obstructions. The tank should be filled with hot water mixed with a cleaning solution, descaled, flushed and allowed to drain.

ADDITIONAL OPTIONS

NOTE

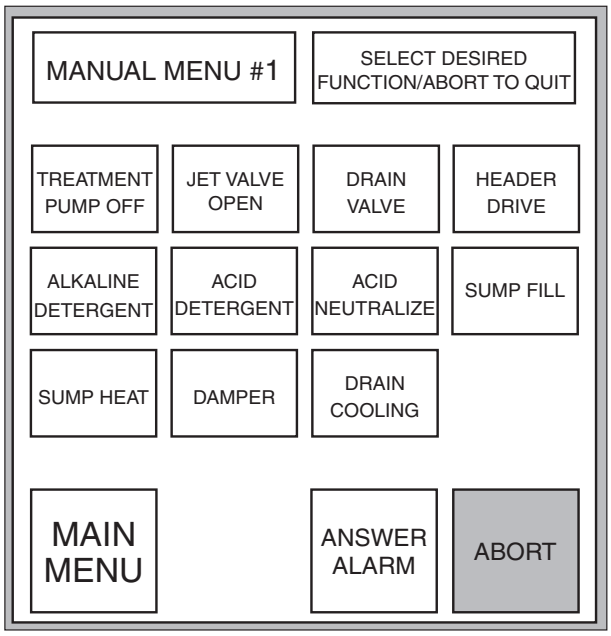
Some options are not available on all models.

Please see the “Additional Options” section of your Customer Manual if your washer has one of these options.

- Acid Agent Wash Saver System
- Air Compressor
- Air Dry System
- Alkaline Agent Tank Descaling System
- Automatic Acid Tank Drain System
- Automatic Alkaline Tank Drain System
- Automatic Rinse Agent Injection System - Time Based
- Auxiliary Surge, Cool-Down, pH Neutralization Tank
- Cold Water Prewash
- Disinfectant Acid Agent Injection System - Time Based
- Electric Hot Water Temperature Booster
- Inclined Floor Grating
- Manifold Feeder Bottle/Utensil Rack Couplings
- M.O.D.E.M. System
- Non-recirculated Hot Tap Water Rinse
- Non-recirculated Pure Water Final Rinse
- Non-vented Drying System
- Vapor Removal Condenser
- Vented Drying System

Appendix A Miscellaneous Screens

MANUAL MODE #1



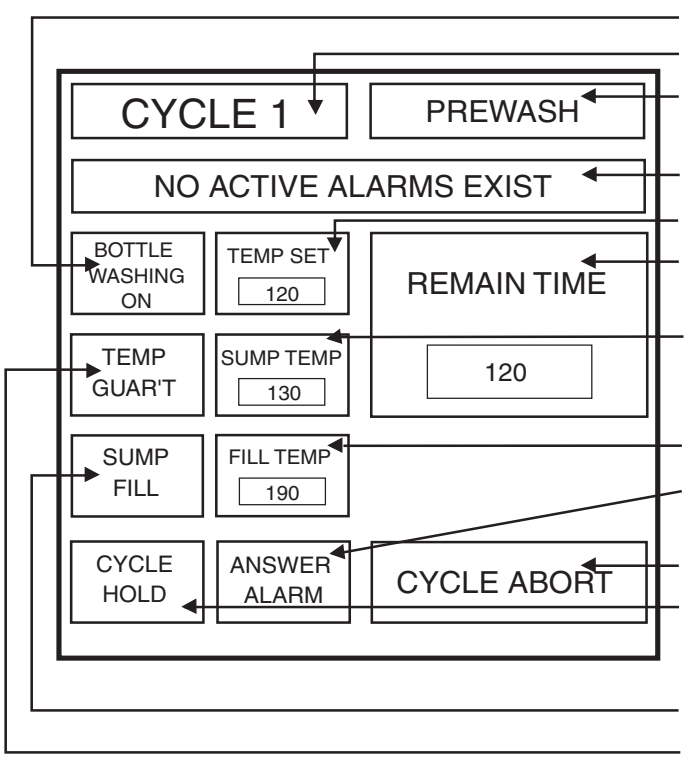
On the Manual Mode #1 and #2 screens, press the prompt to activate the selected components. Press the prompt again to stop the selected component or "ABORT" to stop all of the components that are activated.

All safeties are intact in the manual mode. The wash pumps will operate for 60 seconds when there is no water in the sump.

"SUMP FILL" will not activate if the sump is full. "SUMP FILL" will stop when the sump is full.

Drains will remain open until the "DRAIN VALVES" prompt is pressed again or the screen is changed to a different screen.

PROCESS SCREEN



This prompt displays when the Bottle Washing option is activated.

Displays the current cycle.

Displays the current phase of the cycle.

Displays the current alarm status.

Displays the programmed sump temperature parameter.

Displays the current remaining time in phase.

Displays the actual sump temperature.

Displays the house water fill temperature.

Press this prompt to clear any timed alarm.

Press this prompt to stop all functions of the washer and set the alarm.

Press this prompt to stop the phase timer. Press the prompt again and the phase timer will resume. (Timer will resume after five (5) minutes if the prompt is not pressed again to release the timer.)

This prompt displays during the sump filling process.

This prompt displays if the program has a "TEMP. GUARANTEE" on the temperature of the sump.

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